Pavilion Lake Research Project
Simulation

Lesson Overview
The Pavilion Lake Research Project (PLRP) has been operating and conducting research at its current site since 2004. Microbialites have also been found at another lake nearby (Kelly Lake, BC). Scientists want to expand the research project in order to study the microbialites found in Kelly Lake.

In this lesson, students will participate in a simulation where they defend a position and collaborate to make important decisions about this new development in the research project. In the simulation, students in the PLRP team need permission from all of the nations and stakeholders who have an interest in Kelly Lake in order to start conducting research there in the coming summer. They also need more funding from the Canadian Space Agency’s Canadian Analogue Research Network (CARN). The goal of the PLRP team is to secure funding and permission from all of the necessary parties in order to expand to Kelly Lake the next summer.

Grade Level
Grade 10 and Grade 11 (secondary school)

Time Required
Two sixty-minute classes (one class for research and one class for the simulation)

Curriculum Connection (Province/Territory and course)
British Columbia, Social Studies 10 and Social Studies 11. This lesson could also be used in other geography and social studies courses across Canada.

Additional Resources, Materials and Equipment Required
- Student access to computers and the internet
- Pavilion Lake Research Project Simulation – Student information sheet (attached)
- Role Cards (attached)

Main Objective
The goal of this lesson is for students to be active learners while they defend, negotiate, collaborate and cooperate to try to reach consensus about an issue. They will complete a student-centred activity that will help them appreciate Pavilion Lake as a special and unique place in Canada.

Learning Outcomes
By the end of the lesson, students will be able to:
- Collect and analyse information to defend a position;
- Collaborate and work as a team to reach consensus;
- Represent what it means to be Canadian with reference to important Canadian cultural and scientific achievements;
- Demonstrate knowledge of the unique features of Pavilion Lake that make it an important analogue site for earth and space science.
The Lesson

<table>
<thead>
<tr>
<th>The Lesson</th>
<th>Teacher Activity</th>
<th>Student Activity</th>
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<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Students should be familiar with the Pavilion Lake Research Project (see the CCGE Classroom Cache lesson for an introduction to the project) before they attempt this lesson. Distribute the Student Information Sheet and review it with students. Divide students into groups or let them choose their own groups. Distribute the Role Cards. Inform students that they have one class to conduct research and prepare a brief statement that outlines their perspective to share with the class.</td>
<td>Review the Student Information sheet. Ask questions if necessary. Form a group and read the corresponding Role Card.</td>
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<tr>
<td><strong>Lesson Development</strong></td>
<td>Monitor and assist students as they collect facts and form opinions based on their assigned role. Use the second class to act out the simulation. First, each group should present a brief statement that outlines their perspective. Moderate these presentations as required. Next, the groups have the opportunity to meet, negotiate, cooperate and collaborate to try and reach consensus.</td>
<td>Conduct research and prepare a brief statement. Complete the simulation.</td>
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<tr>
<td><strong>Conclusion</strong></td>
<td>Ask the PLRP team to present the final decision based on negotiations with the other groups. Conduct a debriefing sessions with the students and ask for their input about what went well, what was challenging, and opportunities for taking this simulation further or in another direction.</td>
<td>The PLRP team will present the final decision. Participate in the debriefing session.</td>
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**Lesson Extension**
- Complete one of the other lessons or activities about the Pavilion Lake Research Project (PLRP Cool Technology, The PLRP Research Team).
Assessment of Student Learning
Assess students based on their participation during the research process and throughout the simulation. Students could also be asked to contribute a peer or self-evaluation.

Further Reading
Learn about the Haughton-Mars Project, also located in Canada, through the Mars Institute:
http://www.marsinstitute.info/

Link to Canadian National Standards for Geography
Essential Element #2: Places and Regions
- The importance of places and regions to individual and social identity

Essential Element #4: Human Systems
- Cooperation and conflict in the division and control of Earth’s surface.

Essential Element #5: Environment and Society
- Use and sustainability of resources

Essential Element #6: The Uses of Geography
- Local, regional and world policies and problems with spatial dimensions

Geographic Skill #2: Acquiring geographic information
- Systematically locate and gather geographic information from a variety of primary and secondary sources.
- Systematically assess the value and use of geographic information.
Pavilion Lake Research Project Simulation

Student Information

Overview:
The Pavilion Lake Research Project (PLRP) has been operating and conducting research at its current site since 2004. Microbialites have also been found at another lake nearby (Kelly Lake). Scientists want to expand the research project in order to study the microbialites found in Kelly Lake. They need permission from all of the nations and stakeholders who have an interest in Kelly Lake in order to start conducting research here in next summer. They also need more funding from the Canadian Space Agency’s Canadian Analogue Research Network (CARN). The goal of the PLRP team is to secure funding and permission from all of the necessary parties in order to expand to Kelly Lake in the coming year.

Instructions:
You will be assigned to one of the important groups below. Each group will be given a “Role Card” that describes your task and contains useful websites for research. First, you need to collect facts and form opinions that represent a unique perspective with regards to research occurring at Kelly Lake. Next, you need to present your perspective to all of the groups. Finally, you need to negotiate and collaborate to try and grant permission and funding to the PLRP team. The PLRP team needs to have consensus from all of the groups in order to move forward.

Groups:

- PLRP Team
- First Nations (Secwepemc nation)
- Canadian Space Agency/CARN (4-5 panel members)
- British Columbia Ministry of the Environment/British Columbia Parks (Senior Park Ranger and policy advisors)
- Private Property owners and the village of Clinton
- Recreational users (campers, anglers, boaters, divers, naturalists)
## Role Cards

### PLRP Team

**Useful Websites for research**

Pavilion Lake Research Project:
http://www.pavilionlake.com/
(Pay particular attention to the Mission Objectives.)

PLRP Blog:
http://www.pavilionlake.com/blog/science-reports/a-helo-flight-to-prepare-for-next-year/

Sample Funding Application:
http://www.asc-csa.gc.ca/pdf/RFP_CARN_08-01_Appendix_2_e_ApplForm-31_oct.pdf

Your group needs to get permission from all of the other groups in order to expand your research to include Kelly Lake in the coming year.

You need to present a rationale for this expansion and a description of what is needed (accommodation, supplies, communication etc...) to CARN.

How much funding do you require? What will it be used for?

Make sure that you have facts to support your arguments and consider the needs/wants of the other groups.

### First Nations

**Useful Websites for research**

Secwepemc Cultural Education Society (SCES):
http://www.secwepemc.org/

Downing Provincial Park (see Cultural Heritage)
http://www.env.gov.bc.ca/bcparks/explore/parkpgs/downing/

The PLRP team needs your permission and support in order to expand their project to this location.

Conduct research to determine the possible perspective of the Secwepemc people towards research being conducted at Kelly Lake by the PLRP. What conditions need to be met?

Use facts to support your opinions.
Canadian Space Agency/CARN

Useful Websites for research

Canadian Space Agency:

Sample Forms that demonstrate criteria for funding:
http://www.asc-csa.gc.ca/pdf/RFP_CARN_08-01_Appendix_2_e_ApplForm-31_oct.pdf

The PLRP team will be coming to you to ask for funding to expand to Kelly Lake. Your team must decide if the work they propose to do at this site warrants funding from CARN. Remember, there are several Canadian analogue projects that need funds – the PLRP team needs to make a good case for increased funding and it needs to fit within your mandate.

BC Ministry of Environment/BC Parks

Useful Websites for research

Downing Provincial Park:
http://www.env.gov.bc.ca/bcparks/explore/parkpgs/downing/

Purpose Statement and Zoning Plan:

The PLRP team needs your permission and support in order to expand their project to this location.

Kelly Lake is located in Downing Provincial Park.

Conduct research to determine the possible perspective of the BC Parks and Provincial Government towards research being conducted at Kelly Lake by the PLRP.

What conditions need to be met? Use facts to support your opinions.
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<tr>
<th><strong>Private Property Owners and the Village of Clinton</strong></th>
<th><strong>Recreational Users</strong></th>
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<tr>
<td><strong>Useful Websites for research</strong></td>
<td><strong>As taxpayers, the PLRP team needs your permission and support in order to expand their project to this location.</strong></td>
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<tr>
<td>Downing Provincial Park:</td>
<td>Kelly Lake is located in Downing Provincial Park. The park was donated by C.S. Downing in 1970, and his family still owns the adjacent property.</td>
</tr>
<tr>
<td><a href="http://www.env.gov.bc.ca/bcparks/explore/parkpgs/downing/">http://www.env.gov.bc.ca/bcparks/explore/parkpgs/downing/</a></td>
<td><strong>Conduct research to determine the Downing family’s possible perspective and that of the nearby village of Clinton towards research being conducted at Kelly Lake by the PLRP.</strong></td>
</tr>
<tr>
<td>Village of Clinton:</td>
<td><strong>What conditions need to be met? Use facts to support your opinions.</strong></td>
</tr>
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