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| SCIENCE 10 | SAMPLE LESSON PLANLAND STEWARDSHIP |
| This sample lesson plan supports Education for Reconciliation through the inclusion of First Nations, Métis, and Inuit perspectives; treaty education; and residential schools’ experiences with learning outcomes identified in the current Alberta programs of study for high school in science. Each sample lesson plan includes content(s) or context(s) related to one or more of the following aspects of Education for Reconciliation:* diverse perspectives and ways of knowing of First Nations, Métis, or Inuit, including values, traditions, kinship, language, and ways of being;
* understandings of the spirit and intent of treaties; or
* residential schools’ experiences and resiliency.

Links and relevant information in Guiding Voices: A Curriculum Development Tool for Inclusion of First Nations, Métis and Inuit Perspectives Throughout Curriculum and Walking Together: First Nations, Métis and Inuit Perspectives in Curriculum are provided to support understandings of First Nations, Métis, or Inuit ways of knowing. Both online resources are accessed through LearnAlberta.ca. |
| Education for Reconciliation: Perspectives |
| **Program of Studies Outcomes****Science 10****Unit D: Energy Flow in Global Systems (Social and Environmental Contexts Emphasis)****Focusing Questions**: Is human activity causing climate change? How can we reduce our impact on the biosphere and on global climate, while still meeting human needs?***Outcome for Science, Technology and Society (STS) and Knowledge****Students will:* 4. Investigate and interpret the role of environmental factors on global energy transfer and climate change* investigate and identify human actions affecting biomes that have a potential to change climate *(e.g., emission of greenhouse gases, draining of wetlands, forest fires, deforestation)* and critically examine the evidence that these factors play a role in climate change *(e.g., global warming, rising sea level(s))*

***Attitude Outcome:* Stewardship***Students will be encouraged to:*Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment *(e.g., recognize that human actions today may affect the sustainability of biomes for future generations; identify, without bias, potential conflicts between responding to human wants and needs and protecting the environment)***Resource[[1]](#endnote-1)**Walking Together: First Nations, Métis and Inuit Perspectives in Curriculum. Government of Alberta. Traditional Environment Knowledge: Respecting Wisdom[www.learnalberta.ca/content/aswt/traditional\_environmental\_knowledge/#respecting-wisdom](http://www.learnalberta.ca/content/aswt/traditional_environmental_knowledge/#respecting-wisdom)Traditional Environment Knowledge: Exploring Connections: Documents: *Natural Resources and Conflict*. Excerpt from *Contemporary Issues*, Nelson Education Ltd., Toronto, ON, 2005, pp. 220–224.<http://www.learnalberta.ca/content/aswt/traditional_environmental_knowledge/documents/natural_resources_and_conflict.pdf>Assembly of First Nations. *Mitigating Climate Change: Community Success in Developing Energy Efficiency and Renewable Energy Products*. Retrieved from: [www.afn.ca/uploads/files/env/07-03-31\_health\_canada\_climate\_change\_report-\_final.pdf](http://www.afn.ca/uploads/files/env/07-03-31_health_canada_climate_change_report-_final.pdf)Water Canada. *Kainai First Nation Continues Climate Change Adaptation Program*. 2018. Retrieved from: <https://www.watercanada.net/kainai-first-nation-continues-climate-change-adaptation-program/>Audio clip with Environment and Parks Minister Shannon Phillips. *Backing Climate Change Leadership on Kainai First Nation – Feb. 02, 2018*. Retrieved from: <https://soundcloud.com/your-alberta/backing-climate-leadership-on-kainai-first-nation-feb-02-2018>**Purpose**In this lesson, students will make sense of First Nations, Métis, and Inuit traditional knowledge of reciprocity. Students will learn the significance of connection to the land and the impacts that humans have on the environment. Students will learn the importance of balancing resources for human needs and recognizing potential initiatives in Alberta that help reduce climate change.**Introduction**Ask students to share what they know about the effects of climate change, and give ideas on how we can reduce our impact on climate change. As a class, watch the videos found in Walking Together from [Wilton Goodstriker](http://www.learnalberta.ca/content/aswt/traditional_environmental_knowledge/#respecting-wisdom-goodstriker) and [Billy Joe Laboucan](http://www.learnalberta.ca/content/aswt/traditional_environmental_knowledge/#respecting-wisdom-laboucan) and discuss what was shared and how these ideas can be related to global energy transfer, climate change, human needs, and a sustainable environment.**Activity/Experience**In groups, have students create a mind map of humans needs. Then have them expand the map to incorporate the resources used to meet their needs (i.e., food, transportation, oil, electricity, water, land). Once lists are completed, have the students share their information with other groups.Share the excerpt document [*Natural Resources and Conflict*](http://www.learnalberta.ca/content/aswt/traditional_environmental_knowledge/documents/natural_resources_and_conflict.pdf) from Walking Together with students and have them read through the article as a group or individually.Have students collect data to evaluate effects of climate change. Using their mind map, students will choose one area of concern to investigate. For example, if students want to investigate the effect of climate change on the resource of water, they could consider the relationships between areas of temperature increase, water temperature, and precipitation and the effect on the local community.  1. Students will work through the steps to gather knowledge and use evidence to form their conclusions:* Make and record predictions of an effect of climate change on the chosen issue/need.
* Research and collect data.
* Represent data collected graphically, using digital or non-digital tools.

 2. Using analysis of the data and research collected, students will respond to the following questions:* How has land use changed over time?
* What are the impacts of land use during this time?
* What increased/decreased during this time frame?
* What traditional teachings can we incorporate into our own community to help maintain the balance of resources while mitigating and adapting to climate change?

**Conclusion**As a class, discuss the results from each group using the following questions: * What land use changes for humans, plants, and animals are positive? Negative? Why?
* As a steward of the land, what would you modify or change about the way we view and use the land?

Share some examples that the Assembly of First Nations are working on to maintain stewardship and sustainability of the land ([Mitigating Climate Change](http://www.afn.ca/uploads/files/env/07-03-31_health_canada_climate_change_report-_final.pdf)). As an option, the class could review work happening in southern Alberta ([Kainai First Nation Continues Climate Change Adaptation Program](https://www.watercanada.net/kainai-first-nation-continues-climate-change-adaptation-program/)), including the [audio clip with Environment and Parks Minister Shannon Phillips](https://soundcloud.com/your-alberta/backing-climate-leadership-on-kainai-first-nation-feb-02-2018).**Extension**Invite students to speak with Elders in their community to learn more about the Elders’ perspectives on land use and the observable changes they have experienced.**Assessment for Student Learning**Consider multiple ways students can demonstrate their understanding of traditional knowledge of reciprocity and land use and how these perspectives reveal aspects of First Nations, Métis, and Inuit cultures and worldviews.**Keywords:** land use; climate change; stewardship**Themes:** relationships; ancestors; worldviews and experiences; stewardship**Teacher Background**[[2]](#endnote-2)Prepared by Centre for Indigenous Environmental Resources. *Report 2: How Climate Change Uniquely Impacts the Physical, Social and Cultural Aspects of First Nations*. March 2006. Retrieved from: [www.afn.ca/uploads/files/env/report\_2\_cc\_uniquely\_impacts\_physical\_social\_and\_cultural\_aspects\_final\_001.pdf](http://www.afn.ca/uploads/files/env/report_2_cc_uniquely_impacts_physical_social_and_cultural_aspects_final_001.pdf).**Summary:** This resource summarizes information for teachers. It would be beneficial to read the report before teaching this lesson, because it connects climate change and direct changes in the environment to how it impacts First Nations, Métis, and Inuit.**Supporting Resources**Smith, Dr. Peggy. *Climate Change Challenges for Aboriginal Peoples.* Lakehead University. Retrieved from: [www.climateontario.ca/doc/publications/Smith-ThunderBay.pdf](http://www.climateontario.ca/doc/publications/Smith-ThunderBay.pdf).Environment and Climate Change Canada. *Measuring Progress on Adaptation and Climate Resilience: Recommendations to the Government of Canada*. 2018. Retrieved from: [publications.gc.ca/collections/collection\_2018/eccc/En4-329-2018-eng.pdf](http://publications.gc.ca/collections/collection_2018/eccc/En4-329-2018-eng.pdf).**Principle of Two-Eyed Seeing** ([www.integrativescience.ca/Principles/TwoEyedSeeing/](http://www.integrativescience.ca/Principles/TwoEyedSeeing/))**Walking Together: First Nations, Métis and Inuit Perspectives in Curriculum**([www.learnalberta.ca/content/aswt/](http://www.learnalberta.ca/content/aswt/))**Guiding Voices: A Curriculum Development Tool for Inclusion of First Nations, Métis and Inuit Perspectives Throughout the Curriculum**[Relationships](http://www.learnalberta.ca/content/fnmigv/index.html); Ancestors, Time and Place ([www.learnalberta.ca/content/fnmigv/index.html](http://www.learnalberta.ca/content/fnmigv/index.html))**Our Words, Our Ways: Teaching First Nations, Métis and Inuit Learners (Alberta Education)**([education.alberta.ca/media/3615876/our-words-our-ways.pdf](https://education.alberta.ca/media/3615876/our-words-our-ways.pdf)) |

1. Some resources may not be authorized but are provided to identify potentially useful ideas for teaching and learning. The responsibility to evaluate these resources rests with the user. The selected resource(s) provide a perspective specific to an individual, group, or nation; they are not intended to represent the perspectives of all First Nations, Métis, or Inuit. [↑](#endnote-ref-1)
2. All website addresses listed were confirmed as accurate at the time of publication but are subject to change.

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