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| SCIENCE | GRADE 9 | LESSON PLAN |
| 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 Grades 1 to 9 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****Unit E: Space Exploration** (Science and Technology Emphasis)**Focusing Questions:**How have humans attained a presence in space? What technologies have been developed and on what scientific ideas are they based? How has the development of these technologies contributed to the exploration, use and understanding of space and to benefits on Earth?1.Investigate and describe ways that human understanding of Earth and space has depended on technological development.* identify different ideas about the nature of Earth and space, based on culture and science *(e.g., compare geocentric and heliocentric models [Note: knowledge of epicycles is not required]; describe Aboriginal views of space and those of other cultures; describe the role of observation in guiding scientific understanding of space)*

**Resources[[1]](#endnote-1)**Unreserved with Rosanna Deerchild. *Cree Mythology Written in The Stars*. CBC Radio-Canada (1996-2016). ([www.cbc.ca/radio/unreserved/from-star-wars-to-stargazing-1.3402216/cree-mythology-written-in-the-stars-1.3402227](http://www.cbc.ca/radio/unreserved/from-star-wars-to-stargazing-1.3402216/cree-mythology-written-in-the-stars-1.3402227)) (**Video:** *Cree Legend of the Star People*)**Summary**: Through a First Nations lens, Wilfred Buck, a science specialist with the Manitoba First Nations Education Resource Centre in Winnipeg, shares his knowledge and wisdom of the cosmos.Buck, Wilfred. *Atchakosuk: Ininewuk Stories of the Stars*. Manitoba First Nations Education Resource Centre. Retrieved from [www.slideshare.net/guesta6856e/first-nations-star-stories](http://www.slideshare.net/guesta6856e/first-nations-star-stories) **Summary**: In this article, Wilfred Buck expounds on the Ininewuk’s (Cree) ancestral stories of the stars and unique perspective on the constellations.**Purpose**Students will learn the significance of human connections with the cosmos. This lesson shares Cree stories that describe and explain space and the stars.**Introduction**In an effort to make sense of the world, many cultures share stories of their interpretations of the stars and constellations. Ask students when they last looked up into the night sky. What did they see? What do they know about the mythology of the Roman and Greek constellations? Ask students if they know any First Nations, Métis, and Inuit stories of the stars. **Activity/Experience**Read the introductory text provided on the website from*Cree Mythology Written in The Stars*. Wilfred Buck describes his work and how he came to study the star*s*. Have students think about Buck’s task to bring Cree perspectives of the stars into science. Students will then watch the video from the website (*Cree Legend of the Star People*) with Buck’s explanation of the constellations and review:* From whom does Buck have authority to share these stories?
* What do the stories tell us about Cree understandings of the world?
* Why are the Cree called the “Star People”? How do the stars influence their worldviews?
* How do the Cree stories of the stars differ from those in Greek or Roman mythology?
* What are the similarities?

Divide students into groups to read one Cree story from Buck’s article *Atchakosuk: Ininewuk Stories of the Stars* (e.g., Keewatin, Wesakaychak.). Have each group read the story to the rest of the class and discuss what they learned about Cree culture and their relationship to the stars. **Conclusion**Consider the principle of “two-eyed seeing,” a term coined by Mi’kmaq Elder Albert Marshall. This principle stresses the importance of students learning science using one eye from the strength of First Nations, Métis, and Inuit and the other eye seeing from the Western science perspective. How might this principle of “two-eyed seeing” benefit students’ understanding of constellations?**Extension**Students can investigate other First Nations and/or Métis and Inuit stories of the northern sky. Share knowledge of the Elders’ wisdom, historical records, and teachings. Students can present findings creatively. Invite students to go outside on a dark, clear night to view and consider the constellations in the context of First Nations, Métis, and Inuit stories they learned. To help find the constellations, students can use a [stargazing app](https://itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8https://itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8) that identifies constellations. **Assessment for Student Learning**Consider multiple ways students can demonstrate their understanding of the cosmos and how these perspectives reveal aspects of First Nations, Métis, and Inuit cultures and worldviews.**Keywords:** cosmos; story; stars; constellations; mythology**Themes:** relationships; ancestors; stars**Teacher Background**[[2]](#endnote-2)**Principle of Two-Eyed Seeing** * ([www.integrativescience.ca/Principles/TwoEyedSeeing/](http://www.integrativescience.ca/Principles/TwoEyedSeeing/))

**Free app for viewing the stars** * ([itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8https://itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8](https://itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8https://itunes.apple.com/ca/app/skyview-free-explore-universe/id413936865?mt=8))

MacDonald, John. *The Arctic Sky – Inuit Astronomy, Star Lore and Legend.*Royal Ontario Museum/Nunavut Research Institute, 1998. **ISBN:** 978-088854-427-8 **Language:** English **Summary:** John MacDonald is an astronomer and researcher from Igloolik, Nunavut. The book includes interviews with Inuit Elders and the historical records of Arctic explorers.***Resource Guide for Canadian Aboriginal Astronomy*** * ([www.integrativescience.ca/uploads/articles/2010May-Harris-Canadian-Aboriginal-astronomy-resource-list(in-press).pdf](http://www.integrativescience.ca/uploads/articles/2010May-Harris-Canadian-Aboriginal-astronomy-resource-list%28in-press%29.pdf) )

**Dene Star Names** * ([www.cbc.ca/news/canada/north/northern-dene-astronomy-research-1.3393944](http://www.cbc.ca/news/canada/north/northern-dene-astronomy-research-1.3393944))

**Walking Together: First Nations, Métis and Inuit Perspectives in Curriculum (Alberta Education)*** Worldviews – Exploring Connections – Links ([www.learnalberta.ca/content/aswt/#/fnmi\_worldviews/exploring\_connections/links](http://www.learnalberta.ca/content/aswt/#/fnmi_worldviews/exploring_connections/links))

([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 (Alberta Education)*** [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))
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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. [↑](#endnote-ref-2)