

Unkihdakapi k'a Unowanziyan'kapi Imbabaamaadizimin

WE MOVE AND WE STAY

*An exhibition about contemporary
and Historic Dakota and Ojibwe People*



Educator Guide for Grades 9-12

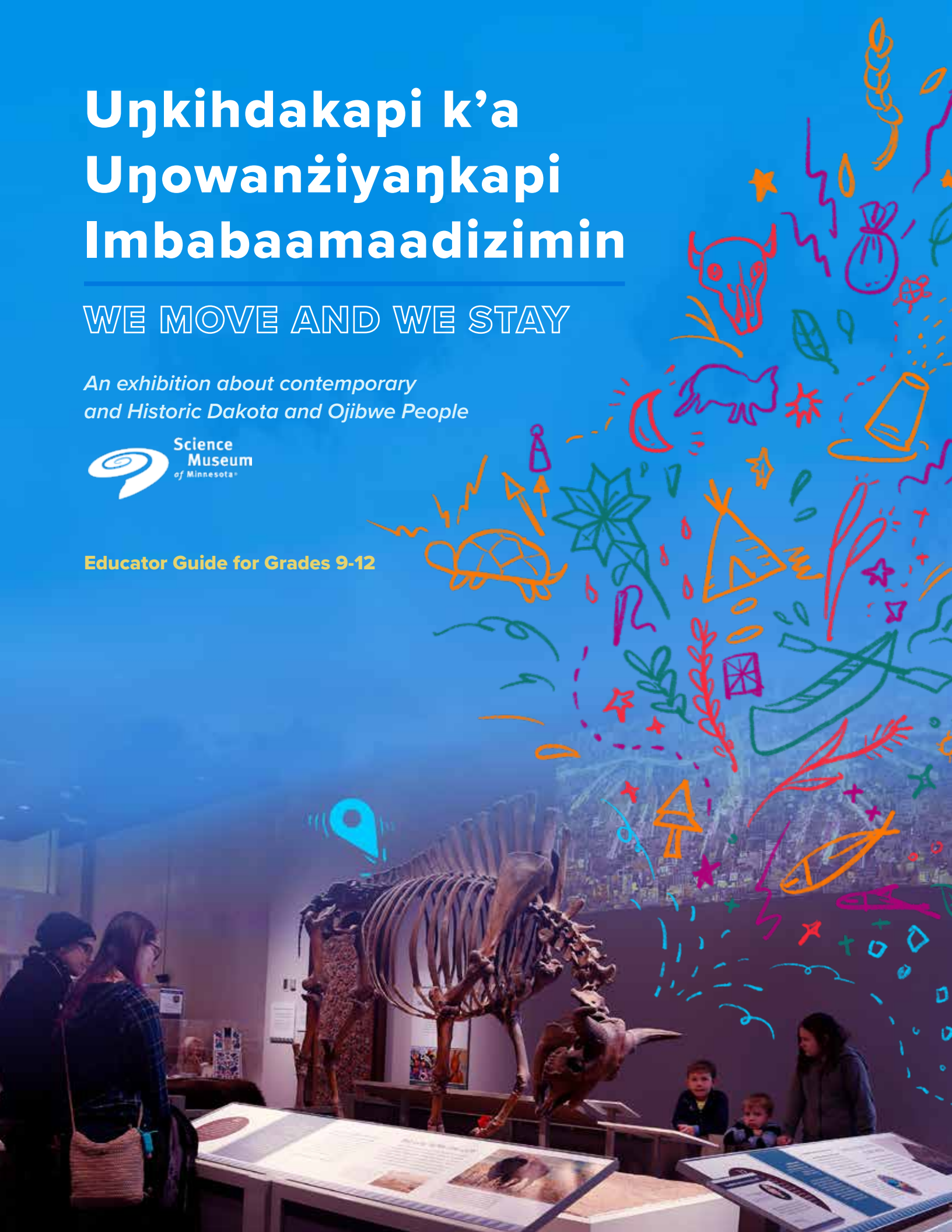


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This guide was made possible through the generous support of the Shakopee Mdewakanton Sioux Community (SMSC) and its Understand Native Minnesota campaign. Concluding in 2024, Understand Native Minnesota was a philanthropic initiative by SMSC dedicated to improving how Native Americans are represented within Minnesota’s K–12 education system. To learn more about the campaign, please visit [here](#). Earlier versions of this guide were supported by funds from the Arts and Cultural Heritage Fund of the Minnesota Legacy Amendment. To learn more about the Legacy Amendment, please visit [here](#).

Teacher and Chaperone Guide

Human lives swirl around a center, moving yet staying over space and time. We move and we stay, growing and changing over lifetimes and generations. In many indigenous communities worldwide there is an emphasis on community and caring for one another. Multi-generational households are normal, and kinship systems are extended and inclusive. Our relatives provide for us, and we look after them. We are all connected.

We move and we stay on this land. Home is a big place, and we shift with the seasons to use its resources.

We move and we stay, trading with and learning from others, but we always return to our center: home, family, and community.

Every item evokes a maker, a purpose, and a story.

Many of the items in *We Move and We Stay* are personal belongings made by generations of Dakota, Ojibwe, and other Indigenous people whose “center” is right here in Minnesota. Discover the stories we know about the items, while knowing that many of their stories have been lost to time and colonialism.

Visiting the Museum

Give chaperones copies of At The Museum student pages.

Add your own page(s). Connect with your own unit.

Choose the activities which meet your needs best. You can use just one page!

Components are not sequential. You can start anywhere in the exhibition.

If your time at the Museum is limited, choose just a few stops.

Don't try to rush your students to finish the suggestions.

What's in a Name

You will see Dakota and Ojibwe phrases throughout this gallery and this guide. These aren't translations of English—direct, one to one translations are not possible. In some Indigenous languages, what English calls a "deer" would be described through motion, relationship and presence: Ojibwe use **waawaashkeshi** (referring to "the one who flashes its tail as it runs") and Dakota/Lakota/Nakoda use **īahca** (īa referring to a ruminant and hca referring to a blossoming, a blooming of their antlers). These phrases reflect a worldview where living beings are known not just by what they are, but by how they exist in the world: how they relate to the land, to others, and to the person observing them.

This also reflects a deeper truth about language itself: how language is constructed can shape how its speakers perceive and think about the world. Patterns in grammar, vocabulary, and expression guide attention, highlight relationships, and influence how people experience time, space, and identity. Language doesn't just communicate thought; it participates in shaping it. Translation here isn't about finding an exact match; it's about honoring a way of seeing.

Sometimes, like with an extinct bison, there is no traditional phrase at all. In those cases, our advisors helped shape a phrase to carry that concept using their language. Including these terms is part of indigenizing the way we tell stories by centering living relationships, not static categories. It's a reminder that a name can carry not just meaning, but memory, movement, and connection.

The We Move and We Stay exhibit showcases beautiful and meaningful items created by the Indigenous People of the place English speakers call Minnesota. The name of our state, as with so many names of states, counties, and cities, is rooted in Indigenous language. Among Dakota People **Mnísóta** refers to clear water as well as the river now known as the Minnesota River. In the 1800s, as European explorers mapped North America, it was common to apply the names of rivers to the regions and landscapes nearby. Multiple translations of the river name were used in French and English, including Menesotor, Menisothé, Minesota, Minnisota, etc. The [current spelling of Minnesota](#) was formalized in 1849, following an act of Congress that created the Territorial Government of Minnesota. The decision to use the Dakota word is colonial, however there are place names in both Dakota and Ojibwe commonly used across the state: Bemidji [Bemijigamaag, Ojibwemowin], Onigum [Onigamiinsing, Ojibwemowin], Chaska [Caske, Oceti Sakowin], Wayzata [Waziyata, Oceti Sakowin], etc.

The words "Native American" and "Indian" are used to describe a diverse group of people whose ancestors lived in the Americas before the arrival of Europeans and subsequent groups. [Both terms](#)—Native American and Indian—are non-indigenous, words coined by non-Natives. Like "Latino" or "Asian," Native American is a general category that neglects the social, linguistic, economic, cultural, religious, and geographic diversity that exists within these groupings of people. Native Americans identify themselves by the name of their Nation or tribe, such as Dakota, Ojibwe (Anishinaabe), or Ho-Chunk. Many prefer more specific affiliations, such as "Leech Lake Band of Ojibwe" or "Sisseton-Wahpeton Dakota Oyate."

About the Guide

Our vision for this new Educator Guide is to center Indigenous voices in guiding visitors through the exhibit. The student pages are designed so that Indigenous youth can see themselves reflected, while remaining engaging and accessible to all learners. We aim for every visitor to leave with a deeper understanding and appreciation of Dakota and Ojibwe lifeways, recognizing their enduring presence, knowledge, and contributions.

The focus of this educator guide is to highlight the STEM concepts incorporated into the daily lives of Dakota and Ojibwe people and reflected in the items in this exhibit. The STEM threads included in the student activities and classroom connections relating to:

- Properties and characteristics of materials from nature.
- The process and products created through engineering design.
- The seasonal round of work, and the interconnectedness between Dakota and Ojibwe lifeways and the natural world.
- Inherent mathematical structure and concepts.
- Links to access items in the Science Museum's collection vault...

Today, thousands of people indigenous to Turtle Island have careers in STEM fields. This guide and student museum activities spotlight contemporary Minnesotans in STEM-related career fields identify as or work in Indigenous communities. Each student activity page included an Innovation and Engineering Spotlight – a quote taken from the longer interviews found in the Resources section ([page 12](#)) to introduce the exhibit activity.

Use exhibit explorations from the guide with your students to share ideas about:

- Contemporary Minnesota connections between STEM and traditional Dakota and Ojibwe lifeways
- Interconnectedness of Dakota and Ojibwe lifeways and the natural world and skies.

Thank You

Thank you to the individuals who shared their knowledge and guidance for the creation of this updated, Indigenous-centered, educator guide: Cyndy Milda, Gerald White, Antavia Peredes-Beaulieu, and Auscia Raincloud.

Thank you to the individuals who provided information and interviews for this guide: Shane Bowe, Paul Dressen, Nikki Jourdain, Pat Kruse, Gabe Miller, Jim Rock, and Sean Sherman.

Thank you to the first version Educator Guide consultant, Becky Beane, whose advice and suggestions were essential support.

Exhibition Overview

Many of the items in *We Move and We Stay* are personal belongings made by generations of Dakota, Ojibwe, and other Indigenous people whose “center” is or was right here in Minnesota. An advisory group of Native Americans developed the theme – *We Move and We Stay* – as a way to explain cycles of life, space, and time.

The *We Move and We Stay* exhibition, located next to the *Race: Are We So Different* exhibition on Level 4, includes items, videos, interactive activities, and written information that highlight Dakota and Ojibwe life in Minnesota. Loose clusters of exhibit cases provide glimpses into several sub-themes: Seasonality and Connections to Land and Resources, Family and Life Cycle, and Tradition and Innovation.



Seasonality and Connections to the Land and Resources

We move and we stay on this land. This place is home. Home is a big place, and we shift with the seasons to use its resources.

Native communities are closely connected with the land and its resources. The landscape is full of meaning – like Bdote, where the Mississippi and Minnesota Rivers come together – remain sacred and powerful. For centuries, Minnesota’s landscape and natural resources shaped Native life and interactions. These resources depend on seasonal cycles, the health of the environment, and the care of the people who live within it, reminding us that humans are part of the natural world and responsible for its stewardship.

Exhibit components connected to this theme:

- Traditional tools and technology associated with changing seasons
- Bison as an important resource
- Resources related to health, water, and relationships with water
 - Cloudy Waters video installation by Mona Smith
 - Birch bark canoe
- Pottery and other items with spiritual world designs



Family and Life Cycle

We move and we stay, growing and changing over lifetimes and generations. Our relatives provide for us, we look after them. We are all connected.

Ojibwe and Dakota families are part of a web of relationships. Each individual’s actions affect family, clan, community, environment, and the balance of these relationships is central to a good, healthy life. People exchange gifts to strengthen bonds, honor life stages and accomplishments, and affirm cultural values of kinship, respect, sharing, bravery, and compassion.

Exhibit components connected to this theme:

- Items that reflect family relationships
- Star quilts and other artwork with star designs
 - An interactive design activity



Tradition and Innovation

We move and we stay, combining new materials and ideas with traditional beliefs and techniques. We move and we stay, trading with and learning from others. But we always return to our center – home, family, and community.

For thousands of years, Minnesota's Native people had strong connections to other groups through a web of trade and interaction. The influx of European missionaries, soldiers, traders, and settlers in the 1800's resulted in the loss of Native homelands by treaty and attempts to stamp out Indigenous cultural and religious practices. In spite of these pressures, Native people maintained strong ties to their roots.

It's tempting to divide Native history into two big epochs—before and after contact with Europeans—and to consider post-contact culture and artifacts less “authentic.” However, Native makers have been incorporating new materials, designs, and techniques into their traditions for thousands of years. Many longstanding traditional practices in Native art and technology were once innovative. Every new work is both inspired by the past and a modern revolution.

Exhibit components connected to this theme:

- **Shiibaashka'igan (Jingle dresses)**, began as healing dresses, created and worn by women to accompany a dance with a 100-year-long history, now made with modern materials.
- **All Races Bouquet #3**, done in birch bark by artists Pat and Gage Kruse, incorporating many traditional plant and animal designs into a new format.
- **Ornaments, projectile points, and designs on clothing and ceramics** that provide evidence of trade among Native American groups across North America.
- **Non-negotiable**, painted by artist Jim Denomie, with both historic and modern references to illustrate how “history is connected to today.”
- **Courting flutes**, traditionally crafted and played by young men, fell into disuse and the art was almost lost until a few carvers relearned how to make them and started teaching others.

About the Whipple Collection

Missionary Henry Whipple, Minnesota's first Episcopalian bishop, arrived in Minnesota in 1859 along with other European settlers moving into the newly formed state. Like most missionaries, Bishop Whipple urged Native people to adopt Christianity and a settled lifestyle. But his deep friendships with Native people made him a strong critic of many other United States policies toward American Indians. After the Dakota War in 1862, Whipple pleaded for clemency for Dakota prisoners. He gained national prominence as a reformed advocate for Indians and as an advisor to four presidents over 40 years.

A believer in many of the assimilationist policies that devastated Native American communities, he was also a passionate supporter of Dakota and Ojibwe people and an avid collector of Native American art (although “art” wasn't a concept held by Native communities at the time). Whipple collected these objects during a time of dramatic changes and rapid transitions for Native communities. His collection forms the basis of this exhibition.

In Honor of the People (www.inhonorofthepeople.org) and *We Move and We Stay* exhibit

Additional Explorations

In addition to *We Move and We Stay*, you can visit other exhibits at the Science Museum to learn more.

Mississippi River Gallery (Level 5)

Place Names and Seasonal Round Activities

Wild Rice

An exhibit piece about wild rice and the ricing process also describes threats to this traditional resource, and spotlights efforts at the Leech Lake Reservation to monitor and manage factors that impact wild rice growth. The installation includes a ricing boat and pole, a photo sequence of rice processing, and maps of rice lake areas.



Where is Wakan-Tipi?

Use this map and computer station to hear Dakota-specific names of places close to the Mississippi River. The entrance to Wakan-Tipi, also known as Carver's Cave, is in St. Paul and provides an example of the principle of symmetry in Dakota culture/cosmology (see the Educator Resources section for an article about Wakan-Tipi)



Sportsology (Level 3)

Indigenous Sports and Games

This interactive exhibit includes components highlighting traditional Native American games and sports that continue to be played today, such as lacrosse, archery, ring and pin games, spear-throwing, and tchungkee.



Connecting with the Classroom

This section includes pre- and post-visit suggestions that can enhance your students' experiences during the field trip.

- Review student pages for connections to your curriculum. Related standards are on [page 26](#).
- Introduce field trip and expectations for field trip activities.

Before Your Visit

Introduce Native American life in Minnesota if you have not done so already. For specific information on each federally recognized tribe, go to the websites listed under Minnesota Indian Tribes [\(page 12\)](#).

Use one or more resources from the Educator Resources section [\(page 12\)](#) to introduce the lifeways and/or contemporary experiences of Dakota and Ojibwe people.

Read one or more of the STEM Spotlight Interviews with or to your students [\(page 17\)](#). These accounts are all from people who work in STEM-related careers to support Native American traditions in contemporary life. Many of these professionals are of Native American ancestry.

The activities below are organized into three subject areas:

- Engineering and innovation
- Resource availability and the seasonal round
- Star stories and indigenous cosmology



Engineering and Innovation

Engineering is the use of science, math, and creativity to solve a problem. People all over the world and throughout time have used materials from nature to design technology to solve problems.

Read excerpt from Indian Boyhood (excerpt in Author Spotlight on [page 24](#); full PDF available through link in the Resources section on page 18), then ask students:

“Write a paragraph about you, fiction or non-fiction, about a time when you were outside and used things from nature to complete a task or solve a problem. This could be a time when you were camping, hiking, fishing, playing with friends, or doing other activities.”

Resources and the Cycle of Seasons

The cycle of seasons refers to the way that seasonal availability of natural resources—and the work of gathering and processing them—structures daily life and guides annual routines and activities, including family relationships, housing types, movement and migration, and many other aspects of Ojibwe and Dakota life. Seasonal activities change not because of a calendar date, but because people who follow the cycle of seasons are responsive to weather and environmental changes. Ojibwe and Dakota people traditionally took only what they needed to support their lifeways, or what western scientific calls sustainability (meeting the “needs of the present without compromising the ability of future generations to meet their own needs....” [\(Brundtland Commission Report: en.wikipedia.org/wiki/Brundtland_Commission\)](#))

Words in [\(parentheses\)](#) are links pointing to items in the Science Museums collection vault.

- The Thirteen Moons on a Turtle's Back, an Ojibwe lunar calendar. [Giizisoo-Mazina'igan - Thirteen Moons on a Turtle's Back](#). The turtle calendar is included in the student activity pages. Dakota people also have a 13-month lunar calendar [Dakota Moons](#)
- Read stories about seasonal food availability at different times of the year. One suggestion is The Birchbark House by Louise Erdrich (also see Children's Literature, [page 13](#)). List and compare activities performed, food available, clothing worn, and environmental differences at two different times of year.
- Define terms and show pictures of foods that may be referenced in the exhibit. Terms include: manoomin/wild rice ([wild rice](#)), winnowing ([winnowing](#)), bison, maple syrup, sustainability.
- Learn more about the gathering and processing activities, tools ([ricing](#)), and recipes for manoomin (wild rice). Thankful for our Mother Earth A kid's manoomin activity booklet - [Gimaamaa-akiiminaan gimiigwechiwendaamin: Thankful for our Mother Earth](#)
- Includes reproducible activities such as a word search and coloring pages: [Ricing with Tommy Sky](#)
- Learn more about the gathering and processing activities, tools, and recipes for ziinzibaakwadwaboo (maple sap). This link to Iskigamizigan (Sugarbush): A Sequel to Growing Up Ojibwe includes kid-specific reproducible activities: [Iskigamizigan \(Sugarbush\)](#)

Star Stories and Indigenous Cosmology

Ojibwe and Dakota people understand the stars and sky as a mirror of the Earth. In this worldview, the sky is the origin of people and the locations of stars are very important reminders about people, places, and things on the Earth. This symmetrical view of the world is represented in Ojibwe and Dakota star stories and in the design of tipis, quilts, and many other important objects. For more background knowledge on Native cosmology, see [page 12](#) in the Resources section.

Discuss the Ojibwe and Dakota people's understanding of the stars and sky as a mirror of the Earth. Show examples of this symmetrical view of the world as represented in Ojibwe and Dakota star stories and in the design of tipis, quilts, and many other important objects. Connect the importance of the star shape to its use on the quilt and artwork students will see at the museum. Tell the story of the Red Morning/Day Star (found in the Educator Resources section on [page 12](#) under "Dakota and Ojibwe Cosmology"). For more information on the importance of quilts and star shapes in Ojibwe and Dakota cultures, see "Native American Quilt-making Educational Resources" in the Educator Resources section on [page 12](#).

Read the interview with Jim Rock ([page 22](#)) about the importance of Dakota and Ojibwe cosmology and its overlap with the study of astronomy.

See [At the Museum](#) for field trip student activities.

After Your Visit

Review activities you did at the Science Museum

Engineering and Innovation

In a think-pair-share, have students review the engineering design process and the notes they made on the At the Museum page. Discuss: Is a similar tool made or used today? How is it similar to or different from the tool you imagined and planned at the museum?



Resources and the Cycle of Seasons

Start a discussion with students about what they saw in the exhibit. Note the title: *We Move and We Stay*; ask students what tools they found that would help traveling to places for new sources of food or for carrying food sources. Why is moving so important to peoples who follow a Cycle of Seasons?

Introduce students to a contemporary Indigenous entrepreneur and chef named Sean Sherman, “The Sioux Chef,” who has a restaurant called Owamni on the Mississippi River in Minneapolis (<https://owamni.com>) and prepares gourmet food using seasonally available indigenous foods. See these videos/resources to find out more about Sean Sherman:

- NPR article | [The Sioux Chef is Putting Pre-Colonization Food Back on the Menu](#)
- Saveur (A cooking magazine) article | [Sean Sherman Sioux Chef](#)



Star Stories and Indigenous Cosmology

Show images of Ojibwe constellations and their corresponding “pictures” as you tell the stories of these Ojibwe constellations. See an excellent electronic resource called [Native Sky Watchers](#). Show how Ojibwe constellations are mapped in relation to Western ones in this lesson by the Jeffers Foundation [Constellation Match](#)

Create a paper quilt.

- Ask students to take out the student page with their design of an object or symbol they thought was important in the exhibit. Pass out a “Quilt Square” or a piece of paper cut 4” by 4”. Ask students to fold the square into 4 (quadrants), and reproduce their symbol on one of the quadrants. Then have them repeat the design exactly across the other quadrants.
- Once students have a basic quilt square, they can reproduce these squares, color them, and join them with other students’ squares to make a class record of the trip to the exhibit.

Research, discussion or writing topics:

- The importance of the quilt as a gift bestowing honor on the receiver
- How the D(L)akota idea of kapemeni—what is above is also below—explains the idea of symmetry

Constellation/planetary observations: students can make observations of the night sky and look for constellations or Venus, TheRedyDay/ Morning Star. Seasonal stellar observation resources can be found at NASA Night Sky Planner | <https://nightsky.jpl.nasa.gov/planner/>

Educator Resources

WEBSITES

Science Museum of Minnesota Digital Collections

Access Indigenous American items in our online collections: <https://new.smm.org/collections/objects/search/>

- Wild Ricing [Ricing](#)
- Dakota Items [Dakota](#)
- Ojibwe Items [Ojibwe](#)

Minnesota Indian Tribes

In Minnesota, there are seven Anishinaabe (Chippewa, Ojibwe) reservations and four Dakota (Sioux) communities. These are federally recognized Indian Tribes and have independent nation status. The following is a link to Native community websites, which contain a wealth of resources: [Minnesota Indian Tribes](#)

The American Indian Science and Engineering Society (AISES)

AISES is a national, nonprofit organization focused on increasing representation of American Indians, Alaska Natives, Native Hawaiians, Pacific Islanders, First Nations and other indigenous peoples of North America in science, technology, engineering and math (STEM) studies and careers. Winds of Change magazine (available to view online) highlights young people in STEM careers, and opportunities for career development. [Winds of Change magazine](#)

Red Lake DNR

This educator guide includes interviews with Red Lake DNR staff members, Shane Bowe and Nikki Jourdain, from the Water Resources Division, on [page 18-20](#). [Miskaagamiwi-Zaaga'iganiing Akigenawendamowaad / Red Lake DNR](#)

Prairie Island Indian Community

This educator guide includes interviews with Gabe Miller and Paul Dressen, staff at PIIC, on [page 17-18](#). [Prairie Island Indian Community](#)

Pat Kruse, Birchbark Artist

This educator guide includes a STEM Spotlight interview with Pat Kruse ([page 21](#)), creator of birch bark art in the exhibition. Pat Kruse harvesting birch bark: [Mni Sota - Reflections of Time and Place showcasing Pat Kruse](#)

Bdote Memory Map

Sisseton-Wahpeton Dakota Oyate media artist Mona Smith created the Bdote Memory Map and the Cloudy Waters: Dakota Reflections on the River media installation in We Move and We Stay. [Cloudy Rivers - Dakota Reflections on a River](#)

The Bdote Memory Map includes overviews of the Dakota history of the confluence of Minnesota and Mississippi Rivers, with numerous links, videos, and resources that reinforce connections to the land, particularly the river.

[Bdote Memory Map](#)

Great Lakes Indian Fish and Wildlife Commission (GLIFWC)

To introduce students (K–8) to the lives of contemporary Ojibwe kids, download booklets from GLIFWC. Formed in 1984, GLIFWC represents eleven Ojibwe tribes in Minnesota, Wisconsin, and Michigan. There are three booklets about ricing, water, and Growing Up Ojibwe. [GLIFWC Educators Corner](#)

Ojibwe Lifeways

“Ojibwe Lifeways” introduces the hunting and gathering traditions of the Anishinaabe (Ojibwe or Chippewa) people of Minnesota. There is also a teacher’s guide for this source: [Teachers](#)

[Guide to Ojibwe Lifeways Multidisciplinary Classroom Activities](#)

Treuer, Anton. "Ojibwe Lifeways", Minnesota Conservation Volunteer: Sept-Oct., 2012. Minnesota Department of Natural Resources. [Ojibwe Lifeways](#)

[Leech Lake Field Guide and Journal](#)

The Leech Lake Band of Ojibwe Division of Resource Management Environmental Lands Department offers a downloadable resource booklet (69 pages) that contains descriptions and photos of numerous plants and animals found in the area, along with space to document observations. [Field Guide and Journal](#)

[Ojibwe People's Dictionary/Photo Gallery](#)

The Ojibwe People's Dictionary is a University of Minnesota-supported resource for Ojibwe language learning that includes an extensive photo gallery, stories and interviews with Native speakers, and support for language acquisition. [Ojibwe Peoples Dictionary](#)

[The Ways Produced by Wisconsin Public Television](#)

The Ways is an ongoing series of stories from Native communities around the central Great Lakes. This online educational resource for students in grades 6–12 features videos, interactive maps, and digital media exploring contemporary Native culture and language. [The Ways on PBS](#)

There are three videos from this website in the exhibition:

- Spearfishing | [Spearfishing](#)
- Deer hunting | [Hunting Deer](#)
- Tall Paul performance | [Prayers in a Song](#)

[American Indians in Children's Literature \(AICL\)](#)

AICL provides critical perspectives and analysis of indigenous peoples in children's and young adult books, school curricula, popular

culture, and society. [American Indians in Children's Literature](#)

[National Museum of the American Indian \(NMAI\)](#)

NMAI offers lesson plans, web links, and a series of online videos about wild rice cultivation practices, tools used, the social importance of rice, and present-day issues including pollution and water quality monitoring among the Leech Lake Band of Ojibwe. [American Indian Responses to Environmental Challenges](#)

[Native American Quilt-making](#)

From the National Museum of the American Indian: To Honor and Comfort: Native Quilting Traditions [To Honor & Comfort - Native Quilting Traditions](#)

From PBS North Native Report – Gwen Westerman [Gwen Westerman on PBS North Native Report](#)

[Dakota and Ojibwe Cosmology](#)

- An interview with Jim Rock, who explains the interdisciplinary and holistic aspects of Dakota star knowledge. Phillips Indian Educators website: [Jim Rock](#)
- An article by Jim Rock and Roxanne Gould explaining the concept of kapemeni and the significance of a Dakota sacred site Wakan Tipi and Indian Mounds Park in St. Paul: [Wakan Tipi and Indian Mounds Park](#)
- A Dakota sacred site -- Wakan-Tipi Awanyankapi in St. Paul. [Indigenous Renaming](#)
- Dakota Star and Moon Knowledge – free resources: [Dakota Star and Moon Knowledge](#)
- Ojibwe artist and scholar Carl Gawboy shares Indigenous star knowledge complemented by Indigenous and cultural astronomers Jim Rock and Jessica Heim and astronomer Bob King: [Northern Nights, Starry Skies](#)
- The Cosmic Lodge as seen through Anishinaabe Eyes: A pictorial guide to the

Ojibwe names of planets, stars, and clan-related star constellations: [Ojibwe Indigenous Star Map](#)

- Native Skywatchers and the Ojibwe Giizhig Anung Masinaaigan – Ojibwe Sky Star Map Annette S. Lee: [Ojibwe Giizhig Anung Masinaaigan - Ojibwe Sky Star Map](#)
- A Native Skywatchers short video – Carl Gawboy presents Wintermaker: [Carl Gawboy Presents Wintermaker](#)
- Thirteen Grandmother Moons: [13 Grandmother Moons](#)

[Waasa Inaabidaa—We Look In All Directions](#)

This is a 6-part documentary series on Ojibwe-Anishinaabe history and lifeways: [ojibwe.org/home](#) Norrgard, Lorraine, prod. Waasa-inaabidaa (We Look In All Directions). PBS. WDSE-TV, Duluth, Minnesota, 4 Apr. 2002. [Waasa Inaabidaa series playlist on YouTube](#)

BOOKS

[Bagone Giizhig: The Hole in the Sky / Aaniindi Nitam Anishinaabeg Gaa-Ondaadiziwad / Where the First People Came From](#)

“Aadizookaanan or Sacred Stories were passed down for thousands of years, filling the long winter nights with Anishinaabeg oral histories, philosophies, and ceremonies. Bagone-Giizhig is one of the many ancient stories that Anishinaabeg Ancestors have gifted us. The constellations of Wenaboozhoo and Bagone-Giizhig rise in the East during the Winter season. This signifies when it is time to share Aadizookaanan and reminds the Anishinaabeg of where they come from. These cultural Teachings shine bright in the night sky and this is the Anishinaabe way of life.”

Text in English translation and in the original Anishinaabemowin/Ojibwe. Moose, Leonard,

[Jingle Dresses](#)

- Shiibaashka’igan (Jingle dresses) <https://parks.canada.ca/culture/designation/evenement-event/robe-clochettes-jingle-dress>
- The Jingle Dress Tradition video by the Mille Lacs Band of Ojibwe <https://www.youtube.com/watch?v=gk7Cha5BVUc>
- Ziibaaska’iganagooday: The Jingle Dress at 100 <https://perpich.mn.gov/wp-content/uploads/2020/11/The-Jingle-Dress-100th-anniversary-Secondary.pdf>
- History of the Jingle Dress, video by the Shakopee Mdewakanton Sioux Community <https://www.youtube.com/watch?v=A9RoeJJWKI4>

and Mary Moose, *Bagone Giizhig: The Hole in the Sky / Aaniindi Nitam Anishinaabeg Gaa-Ondaadiziwad / Where the First People Came From*. British Columbia: Strong Nations Publishing. 2021

[Braiding Sweetgrass](#)

A Potawatami professor of botany, Kimmerer tells her story of integrating traditional knowledge and ways of thinking with her academic and professional career as a plant ecologist and environmental educator. Dr. Kimmerer’s webpage at SUNYSyracuse: <https://www.esf.edu/faculty/kimmerer/index.php>

Kimmerer, Robin Wall. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Minneapolis, MN: Milkweed Editions, 2013.

D(L)akota Star Map Constellation Guide

Native researchers, educators and cosmologists detail and depict D(L)akota star knowledge and its relevant connections to other facets of D(L)akota lifeways, in conversation with Western scientific understandings of astronomy.

Lee, Annette, Jim Rock and Charlene O'Rourke
D(L)akota Star Map Constellation Guide: An Introduction to D(L)akota Star Knowledge. North Rocks, CA: Lightning Source-Ingram Spark Publishers. 2014.

Fur Trade Nation

Carl Gawboy offers a fresh perspective on the Fur Trade Era, placing Ojibwe technology, kinship systems, cultural paradigms, and women at the heart of this remarkable era, where they have always belonged.

Gawboy, Carl. *Fur Trade Nation: An Ojibwe's Graphic History*. Cloquet, MN: Animikii Mazina'iganan: Thunderbird Press. 2024

Inhabiting the Earth

"Our Ancestors passed, Adizookaanan, our legends, down for thousands of years, filling the long winter nights with our oral history, philosophy, and ceremonies. Ajijaak is one of our many ancient stories that our Ancestors have gifted us. The many teachings of the animals, the stars, the Clan structures, and the four elements are brought to life through Ajijaak.

Many stories were passed on to Mary as a child. She shared Ajijaak with Leonard. Leonard's love for the Anishinaabeg and concern that our way of life was being lost especially our oral traditions, decided he would work hard to bring the translation of Ajijaak to readers. Leonard wrote Ajijaak down in Anishinaabemowin and illustrated the story.

Mary and Leonard say our stories are written in the stars, so we can never forget the truth of our

existence—we are spirits on a physical journey, with a sacred duty to understand, respect and care for the generous gifts we receive from all the beings who inhabit the earth."

Moose, Leonard, and Mary Moose, *Inhabiting the Earth*. British Columbia: Strong Nations Publishing. 2021

Indian Boyhood

Ohíyesa (Charles A. Eastman), co-founder of the Boy Scouts of America, shares an autobiographical account of his traditional Dakota boyhood in the late 1800s. Eastman, Charles. *Indian Boyhood*. New York: McClure, Phillips, 1902. *Indian Boyhood*, by [OHIYESA] Charles Eastman - Full Text Free Book. Project Gutenberg, 5 July 2008. Web. 12 Apr. 2017.

Free EBook: [Indian Boyhood](#)

Ininatig's Gift of Sugar: Traditional Native Sugarmaking

In this book—part of the *We Are Still Here* series—an Anishinaabe (Ojibwe) man demonstrates for young people the art and science of maple sugar processing.

Wittstock, Laura Waterman., and Dale Kakkak. *Ininatig's Gift of Sugar: Traditional Native Sugarmaking*. Minneapolis: Lerner Publications, 1993.

Madoodiswan: Sweatlodge

"Mary and Leonard say our Ancestors passed Adizookaanan, our stories, on for thousands of years, filling the long winter nights with our oral history, philosophy, and ceremonies. Madoodiswaan, Sweatlodge, is the story of the four sisters who spoke to the beavers and in accordance with Creator's Law constructed a Sweat Lodge that would help to heal the Anishinaabeg." Moose, Leonard, and Mary Moose, *Madoodiswan: Sweatlodge*. British Columbia: Strong Nations Publishing. 2022

Niimiwin: Everyone Dance

A look at the Powwow celebration with children from the Fond du Lac Band of Lake Superior Chippewa including preparation, the Grand Entry, the dancing, the feast, and an invitation to Native and non-Native alike to “see you at the next year’s Powwow.” Savage, Leah, Nikki Willgohs, and Jill Pertler. *Niimiwin: Everyone Dance*. Minneapolis: IGI, 2009

Powwow

The author photographed Montana’s Crow Fair, the largest powwow held in the United States, and documented the variety of dances, traditions, and family and tribe relationships. Ancona, George. *Powwow*. San Diego: Harcourt Brace Jovanovich, 1993.

From Fond du Lac MN Head Start [Culturally Significant Board Books for Young Children](#)

Birchbark Books

Located in south Minneapolis, Birchbark Books is a resource for Native books, Native arts, jewelry, and community events. Their mission “...is to help schools stock their libraries with informative, sensitive, honest and appropriate books on Native American subjects. History, fiction, memoir, language, poetry, children’s and young adult’s books—we have them and would love to share.” [Birch Bark Books](#)



Stem Spotlight Interviews

Gabe Miller

Environmental Specialist / Program Manager, Land and Environment Department,
Prairie Island Indian Community

At Prairie Island Indian Community, as many as 120 buffalo (aka American bison) graze in large fields. Along with conventional hay (non-native plants such as alfalfa or cool season grasses), the Prairie Island herd also eats hay (dried prairie grasses) from 285 acres of reservation prairie. Miller, who has a master's degree in wildlife ecology and conservation, manages the prairies and assures the native food sources for the buffalo. The day-to-day care and management of the herd are the responsibility of the Buffalo Project manager and his staff. Miller also oversees environmental issues for the Tribe including (but not limited to) water quality, run-off pollution, and invasive species on the reservation, and represents the Tribe regarding environmental information to external agencies and organizations.

Miller is German/Dutch, not Native American. The Tribe often hires outside the community because too few community members have the necessary education or experience in specialized fields. In Miller's department, only one of the six staff members is of Native descent.

What are the main responsibilities of your job?

Miller wears many hats for the tribe. Funding for his position comes from the Environmental Protection Agency (EPA) and other federal grants. Miller oversees his department, builds the environmental program, and guides environmental policy, compliance, and representation. In addition to duties described by grants, Miller also works under the direction of the Tribal Council to oversee land management of natural/wild areas as well as native habitat restoration areas. Miller represents the Tribe to other state, federal and NGO environmental agencies/offices. The Tribe's natural resources—wildlife, habitat management, invasive plant/wildlife management, and culturally important natural resources such as wild rice and other native foods and medicines (both within natural areas and in the gardening program)—are within his jurisdiction. Sometimes Miller also oversees archaeological resource preservation and representation within the region.

What are your responsibilities regarding the buffalo herd at Prairie Island?

Miller is very active in management of native hay resources and is working on a program to expand pasturelands. Describe some interesting and challenging elements in your work with the bison. "Early on," Miller says, "there was a general assumption that the bison could be managed much like beef cattle. After some experience and challenges, we learned that bison have unique needs. Compared to cattle, bison need less protein and more acreage per animal. Understanding those needs is key to keeping the herd healthy and growing." The Tribe continues to make improvements in its infrastructure and management for the betterment of the herd.

How did you get interested in the field of wildlife ecology?

Miller always enjoyed working/playing outdoors. When he entered a natural resource program at Central Lakes College (after starting a major in biology), Miller realized how much he enjoyed learning about plants and animals. He found a need for, but a general societal apathy toward, stewardship of natural resources. He continued his career with a wildlife focus, but his biggest pride is now the land management work that he does. "It provides so many benefits—not only to the land, but to the wildlife and the people who depend on basic natural resources (clean water, air). It benefits the human race's long term health, well-being, and even our survival as a species."

Paul Dressen

Director of Education, Prairie Island Indian Community

Dressen works with all enrolled members of the Prairie Island Indian Community, whether or not they live on the reservation, and with all types of educational programs—tutoring programs at the local and Red Wing school districts, liaisons working with schools, one-on-one student programs, and a local parent committee.

Working with the bison herd

Dressen prefers to use the Dakota word *taȟaŋka* when talking about the animals in the herd. Most people call them buffalo, but bison, or Plains bison, is the more appropriate name. Dressen leads programming for groups who are interested in learning more about the bison—he drives groups into the herd area, and discusses bison biology, the uses of bison, and more. He finds the Intertribal Bison Council's "Buffalo Box" a great resource because it shows materials made from the bison (sinew or bladder, for example) and their traditional uses.

How do tribal members interact with or use the herd?

Native people have had connections with bison for millennia. There were 30 million bison before European contact, and only 1085 left around 1900. The US government's intentional extermination of the bison disrupted the close and deep historical connections between Native people and the animals. Today, the Inter-tribal Bison Council works to reestablish Native herds and connections. With renewed recognition of the relationships between *taȟaŋka* and Dakota people, growth of the bison population has been steady and valued. There are over 400,000 bison today!

Funding is provided by the Edwin Buck Memorial Bison Project to support the herd, which has now grown to about 100 animals.

The Prairie Island Community harvests several bison each year. Enrolled tribal members get an allotment of meat each month from a community meat locker. The Tribal Council considers other requests from enrolled members, too. For example, hides are used for drums or can be tanned, and skulls have spiritual uses.

How did you get into your area of work?

Dressen grew up on a farm in the area, and has a degree in biology. He has worked at PIIC for 27 years. Edwin Buck Jr. Memorial Buffalo Project | <https://prairieisland.org/who-we-are/our-culture/buffalo-project>

Shane Bowe

Water Resources Program Director, Red Lake DNR

What are the challenges facing natural resources in Red Lake?

With more than 800,000 acres to cover, Bowe says, "it's extremely challenging to thoroughly manage and protect everything with the small number of staff in the Water Resources Program. Seeking additional funding often takes us down roads that are tangential to our mission. The projects may even be great but they often take time away from our core mission of monitoring and protecting the Band's water resources. Development, both current and future, presents us with some clear natural resource-related concerns." Specifically, the most buildable areas happen to be in the areas with sensitive lakes and red pine forests. Urban sprawl is increasing off the Reservation, and Bowe expects the same in the Red Lake Nation.

Describe your “favorite” project to promote/enhance sustainability of natural resources in Red Lake. A photovoltaic solar system installed at the Boys and Girls Club may become Bowe’s favorite. Electricity produced will be monitored in real time and show the actual offset in their electric bill. This can promote not only alternative energy but a simple awareness of electrical use.

A joint project with the Science Museum of Minnesota and the Red Lake DNR

Along with scientists from the Science Museum, Bowe is involved with the International Multiagency Arrangement related to water quality on Lake of the Woods. An area of Lake of the Woods is very similar to Red Lake: it’s large, windswept, shallow, and high in nutrients. This project, which began in early spring of 2016, could be useful in figuring out what the “natural” nutrient regime was like at Red Lake prior to European settlement. Did it have blue/green algae? What were the sources of phosphorus and nitrogen? What was the phosphorus in the water column like? Paleolimnological analyses helps answer some of these questions.

How are area youth involved in the Red Lake DNR’s activities?

The Red Lake DNR staff provides

- presentations for elementary schools about how and why the DNR staff catch aquatic invertebrates and what the creatures indicate about water quality;
- an annual water festival for 5th graders;
- presentations, some field work, and equipment support for a program called River Watch at the high school (river.watch); and
- an internship program for college students.

What got you interested in natural resources work?

Bowe was always interested in biology. An internship with an amazing mentor at the MN DNR let him see career options that allowed him to work outside and make the world a better place. Bowe says, “What more could you want out of a job?”

What kind of educational background did you need or would you recommend to others who do your kind of work?

In general, natural resources positions are becoming more and more competitive. A lot of positions require a bachelor’s degree, but aren’t really going to be available to a potential candidate without a master’s degree. “Along with the degree, I highly recommend working as an intern early and often throughout college and working hard on soft skills” [i.e. interpersonal skills and attitudes that support knowledge and technical skills in the workplace].

How does your work relate to cultural heritage of the community?

Bowe and his colleagues at the Red Lake DNR use science-based methods to protect species important to Band members’ traditional practices. The Fisheries program monitors fish populations, especially walleye, and manages them sustainably. The Red Lake DNR is developing a climate change monitoring strategy for the entire Midwest (EPA Region 5) that will incorporate Traditional Ecological Knowledge (TEK) and phenology in order to assess and protect things like maple trees and berries. They also assess wild rice densities in areas traditionally used by Band members and have cooperatively used science-based arguments to push back against attacks on the wild rice water quality standard. The Red Lake DNR has a website and a newsletter. Staff attend many public events as well as hold public meetings whenever a project’s impact might concern the public. They try to have meetings in each and every community on the Reservation since not everyone can travel easily. redlakednr.org

Jerilyn (Nikki) Jourdain

**Non-point Source Water Pollution Specialist / Climate Change Coordinator,
Red Lake Department of Natural Resources (DNR)**

“Traditionally,” Jourdain says, “our culture has relied on personal observation and passed-down knowledge of things like medicinal plants, agricultural techniques, and hunting and fishing cycles. We can reclaim our position as ‘natural scientists’ only if we make it important again in our own society—and I’m going to be a part of that in some way!”

What is your climate change project about?

The project began by working through a curriculum about climate diversity and model forest planning, reviewing data collected over 25 years by the Red Lake DNR about water resources, forestry, and other natural resources on the reservation. It continues by reaching out to other tribal programs and other departments within the Red Lake DNR, to inform them about the project and collect further data.

What is an example of something you found in your research?

The Red Lake population of whitefish, which has cultural importance, crashed about three years ago. The water was too warm for the coldwater fish, and the population may never rebound to previous levels. Jourdain would also like to ask for stories from community people who have seen changes (farming, fishing, berries, medicines).

What changes would you anticipate for Red Lake Nation, in light of climate change?

Jourdain anticipates that shifting seasons (for example, early ice out, earlier spring signs) might affect people’s livelihood, with higher temperatures, changes in types of species in the forests, and heavier but less frequent precipitation events (rainfall or snow). For example, heavy rain during ricing season can ruin the whole crop. She also notes that traditional Ojibwe month names no longer reflect the actual experience. Sugar Moon—the sugarbush time, which used to be around April 23—no longer happens in April. The sap run and gathering is now much earlier. Strawberry Moon was mid-June, but now strawberry time is earlier. November was called Ice or Freezing Over Month, but now they have open water in November.

What got you interested in natural resources work? What kind of educational background did you need or would you recommend to others who do your kind of work?

An enrolled member of the Red Lake Nation, Jourdain would like more Native people involved in STEM. She’s a willing mentor to younger community members. Another goal is to encourage and support more people to speak up about important environmental matters at Red Lake. Jourdain would also like to ask for stories from community people who have seen changes (farming, fishing, berries, medicines).

Pat Kruse

Birchbarker artist, Red Cliff Band of Superior Chippewa & descendant of Mille Lacs Band of Ojibwe

How long have you been working with birch bark?

Kruse learned how to work with birch bark through cultural classes in school, and has worked off and on since he was a kid, both at Leech Lake and Mille Lacs.

How would you describe birch bark?

Kruse describes birch bark in numerous ways. “It’s like super-thick paper. It’s waterproof. It can be cut. It comes in many colors and all colors are important. “In the spring, it’s like a ‘skin,’ and in fall, hardened.”

Birch bark can be many colors. Summer bark is yellow on the inside. Second growth grows back after white bark is peeled, kind of thick to use. Kruse can split the bark and that makes different colors.

Kruse feels strongly that since he is taking the skin off the tree, it is important to pray before he takes any bark. He feels it is right to thank the natural world for human survival and to ask for forgiveness.

Birch bark has so many uses: storage containers, boats, cups, houses, medicine. It doesn’t rot. “Birch bark is a miracle thing, amazing, sacred.”

Birch bark is a beautiful material but gathering it can be dangerous and requires a lot of physical work. Once it’s peeled, the bark needs to dry for 30 days. Kruse says, “You need to fail a million times to better understand how to do it.”

Kruse and his son Gage use sinew for sewing birch bark pieces together because it’s stronger and longer lasting than traditional tree roots and basswood inner bark (wigub).

Where do you look for inspiration?

How do you balance tradition and innovation? Some people see innovations as “non-authentic,” but Kruse feels that he walks in the footprints of the people before him and then adds his own style and signature. He’s worked closely with his son since Gage was a little boy, and feels very lucky that he can pass these skills and love of the work on to the next generation. But Gage does really great work, and Kruse also learns from him when they work together.

Several years ago, Kruse had a residency at the Minnesota Historical Society to study collections of birch bark work. He saw intricate designs and techniques that contemporary artists were rarely using. He strives to produce quality pieces based on old and new techniques. He’s learning an old technique called “scrape work,” in which the top layer of bark is scraped off to produce designs.

***We Move and We Stay* at the Science Museum features two very large art pieces by you. Please say more about them.**

The two pieces, *My Brother’s Blanket #10* and *All Races Bouquet #5*, are some of the largest ever made. Each piece has more than 1,000 pieces of birch bark in a variety of colors. Symmetry is very important in these pieces. The designs were laid out using cedar pins and fish bones. A tribute to Pat Kruse’s mom and grandma, who made lots of different kinds of blankets, *My Brother’s Blanket #10* is based on star quilt designs. To finish it, the father-and-son duo needed 40–50 diamonds of the same color, and they almost ran out of birch bark!

Pat Kruse harvesting birch bark | [youtube.com/watch?v=67I_Yr0A5I](https://www.youtube.com/watch?v=67I_Yr0A5I)

Pat Kruse: 2015 Fellowship, Native Arts and Cultures Foundation | nativeartsandcultures.org/pat-kruse

Jim Rock

Dakota scholar and Program Director, Marshall W. Alworth Planetarium at the University of Minnesota-Duluth

Please tell us about your study of Dakota star knowledge/ethnoastronomy?

When asked to describe Dakota cosmology, Rock says “[Our] cosmology is a mirror of the natural world in the sky. . . there is symmetry and geometry reflected in these ideas.” Rock explains how the Dakota constellations are an important part of everyday life and of following the seasonal round: “Where we are on earth is reflected in star stories. The stories were told annually. . . the plant constellations and animal constellation [helped us to] move through the seasons.” Rock also explains how star stories have spiritual importance: “We come from the stars and we return to the stars; we come from the earth and return to earth. We know we must be the best relative(s) we can be to each other between Father Sky and Earth Mother. And not just as two-leggeds being good relatives to other two-leggeds, but with ALL our relatives, the four-leggeds, wingeds, rooted, crawling, swimming, etc. . . all are our relatives.” Rock talks about how this understanding of the relationship of the earth to sky/spirit world is represented in many aspects of culture, such as tipi design. The movement of stars reveals numeric patterns that guide behavior; thus, star stories are both “artistic and functional,” as Rock says: “They teach us how to live in times of change.”

In an interview (pieducators.com/wisdom/jim_rock#pedagogy, accessed 5/10/17), Rock further describes an indigenous view of math and science as “interdisciplinary. It doesn’t mean that ‘everything is thrown together in some random way.’ That’s unfortunately the outside perception. But we’re not afraid to see patterns of patterns. We’re not afraid to see the metapatterns and the patterns of connections. Being an astronomer, that’s how we see those stars, constellational patterns. So I call that [interdisciplinary view] a ‘constellation of thoughts.’ There’s a weaving, so it’s interdisciplinary, like the music piece or the storytelling piece may have multiple purposes, objectives and multiple seeds that are planted in our soul that grow and bear fruit over time. There’s the mathematics that’s in the music and the ethics and values so it’s interdisciplinary. . . this is natural numeracy [learning to read nature in its own languages and number patterns].”

For more information about Jim Rock’s work, please see references in the Educator Resources section under Dakota/Ojibwe Cosmology.

Advisors for the 2025 Guide Update

Cyndy Milda was chosen for her knowledge as a traditional teacher and a Dakota grandmother who has raised and taught children, grandchildren, nieces, nephews. She, and her family, are active in their Dakota culture. Cyndy is not only a matriarch but she is also an elder. Cyndy was raised in part by her grandparents and values the way her direct and consistent interaction with elders shaped her mind.

Gerald White hails from a traditional Ojibwe family. He is active in his culture, participates in ceremony, and attends powwow. He is a grandfather, a father, an uncle, and a son. Gerald holds degrees in Biology and works in the Deer River Schools ISD 317's Indian Education Department. Gerald has been a champion for Indian Education, and cultural curriculum his entire life. Gerald is a US Army veteran and is rich in culture and family.

Antavia Paredes-Beaulieu is an Ojibwe educator who grew up in South Minneapolis. She is a PhD student of chemistry at the University of Minnesota, as well as a mother and daughter. She currently works for Migizi, an organization that provides educational and cultural support for Native American youth in the Twin Cities. Antavia leads their Green Tech program, "where high schoolers get paid to learn about STEM from an Indigenous perspective." Antavia combines traditional knowledge with western knowledge as she teaches and guides.

Auscia Raincloud lives on the Red Lake Reservation with her husband and their children. Auscia has been an educator at Ponemah Elementary School for 25 years. Auscia grounds her teaching in the local environment, helping students relate personally to the land and understand both the resources it provides and their role in caring for it. Auscia is a talented artist and often incorporates art into her science lessons. Auscia's connection to her community and her work as an educator inside a tribal school make her an ideal partner for the project.

Author Spotlight

Ohíyesa (Charles Eastman)

Born in Minnesota in 1858, Charles Eastman was a Dakota doctor, writer, and activist. His mother died shortly after his birth, and he was raised by his grandmother, Dowanhotawin ("Her Singing Voice is Heard"), who was baptized with the name Ellen Eastman. As a child, he learned about herbal medicine from his grandmother. He graduated from Dartmouth College in 1887 and earned a medical degree from Boston University in 1889. He used both European and Native American healing practices to benefit his patients, and was the only physician to tend to the Lakota at Wounded Knee. He co-founded the Boy Scouts of America, helped found 32 reservation chapters of the YMCA, and wrote many books about Native American history, culture, and contemporary issues.



Excerpt from *Indian Boyhood*

Complete text available online at <https://www.gutenberg.org/files/337/337-h/337-h.htm>

We were not only good mimics but we were close students of nature. We studied the habits of animals just as you study your books. We watched the men of our people and represented them in our play; then learned to emulate them in our lives. In the interior of the forest there were lakes with many islands, where moose, elk, deer and bears were abundant. The water-fowl were wont to gather here in great numbers. . . . The forest also was filled with a great variety of birds. To me, as a boy, this wilderness was a paradise. It was a land of plenty. To be sure, we did not have any of the luxuries of civilization, but we had every convenience and opportunity and luxury of Nature. We had also the gift of enjoying our good fortune, whatever dangers might lurk about us; and the truth is that we lived in blessed ignorance of any life that was better than our own.

SUMMER

When our people lived in Minnesota, a good part of their natural subsistence was furnished by the wild rice, which grew abundantly in all of that region. . . . The wild rice harvesters came in groups of fifteen to twenty families to a lake, depending upon the size of the harvest. Some of the Indians hunted buffalo upon the prairie at this season, but there were more who preferred to go to the lakes to gather wild rice, fish, gather berries and hunt the deer. There was an abundance of water-fowls among the grain; and really no season of the year was happier than this.

August is the harvest month. There were many preliminary feasts of fish, ducks and venison, and offerings in honor of the "Water Chief," so that there might not be any drowning accident during the harvest. The preparation consisted of a series of feasts and offerings for many days, while women and men were making birch canoes, for nearly every member of the family must be provided with one for this occasion. The blueberry and huckleberry-picking also preceded the rice-gathering. . . .

On the appointed day all the canoes were carried to the shore and placed upon the water with prayer and propitiatory offerings. Each family ... entered the lake, assigning two persons to each canoe. One manipulated the paddle, while the foremost one gently drew the heads of [the rice stalks] toward him and gave it a few strokes with a light rod. This caused the rice to fall into the bottom of the craft. The field was traversed in this manner back and forth until finished. The real work was when they prepared the rice for use. First of all, it must be made perfectly dry. They would spread it upon buffalo robes and mats, and sometimes upon layers of coarse swamp grass, and dry it in the sun.

When all the rice is gathered and dried, the hulling begins. The rice is heated over a fire-place. A young man, having washed his feet and put on a new pair of moccasins, treads upon it until all is hulled. The women then pour it upon a robe and begin to shake it so that the chaff will be separated by the wind... [We] let nothing go to waste, and labored incessantly during the summer and fall to lay up provision for the [winter]. Berries of all kinds were industriously gathered, and dried in the sun. Even the wild cherries were pounded up, stones and all, made into small cakes and dried for use in soups and for mixing with the pounded jerked meat and fat to form a much-prized Indian delicacy.

FALL

As soon as hunting in the woods began, the customs regulating it were established. . . . A hunting bonfire was kindled every morning at day-break, at which each brave must appear and report. The man who failed to do this before the party set out on the day's hunt was harassed by ridicule. As a rule, the hunters started before sunrise, and the brave who was announced throughout the camp as the first one to return with a deer on his back, was a man to be envied. . . .

WINTER

When I was about twelve years old we wintered upon the Mouse river, west of Turtle mountain. It was one of the coldest winters I ever knew, and was so regarded by the old men of the tribe. . . . There was a great snow-fall, and the cold was intense. The snow was too deep for hunting, and the main body of the buffalo had crossed the Missouri [River], where it was too far to go after them. But there were some smaller herds of the animals scattered about in our vicinity, therefore there was still fresh meat to be had, but it was not secured without a great deal of difficulty. . . . The men had their bows and arrows, and a few had guns. The huge animals could not run fast in the deep snow. . . . The hunters brought many of them down.

SPRING

With the first March thaw the thoughts of the Indian women of my childhood days turned promptly to the annual sugarmaking. This industry was chiefly followed by the old men and women and the children. The rest of the tribe went out upon the spring fur-hunt at this season, leaving us at home to make the sugar.

The first and most important of the necessary utensils were the huge iron and brass kettles for boiling. Everything else could be made, but these must be bought, begged or borrowed. Little. . . . basswood and birchen basins were made to receive the sweet drops as they trickled from the tree. As soon as these labors were accomplished, we all proceeded to the bark sugar house, which stood in the midst of a fine grove of maples on the bank of the Minnesota river. It is usual to make sugar from maples, but several other trees were also tapped by the Indians. From the birch and ash was made a dark-colored sugar, with a somewhat bitter taste, which was used for medicinal purposes.

A long fire was now made in the sugar house, and a row of brass kettles suspended over the blaze. The sap was collected by the women in tin or birchen buckets and poured into. . . . the kettles. Each boy claimed one kettle for his especial charge. It was his duty to see that the fire was kept up under it, to watch lest it boil over, and finally, when the sap became sirup, to test it upon the snow, dipping it out with a wooden paddle. . . . My grandmother set herself in earnest to store up sugar for future use. Being a prudent woman, she did not give it to us after the first month or so, except upon special occasions, and it was thus made to last almost the year around. The sugaring season extended well into April, and the returning birds made the precincts of our camp joyful with their songs.

Minnesota Academic Standards | Grades 9-12

The Science Museum of Minnesota provides a field trip destination that allows teachers and students to reinforce Minnesota Academic Standards. Use of the materials in this guide in combination with a field trip to *We Move and We Stay* will help you link learning experiences to the following standards.

SOCIAL STUDIES (2021)

GRADE 9-12 - Citizenship and Government

9.1.6.1 Evaluate the unique political status of Tribal Nations in relations to the United States. [Strand 1 - Citizenship and Government: 6. Tribal Nations: Evaluate the unique political status, trust relationships and governing structures of sovereign Tribal Nations and the United States.]

9.1.6.2 Compare trust relationships between Tribal Nations and Minnesota’s state and local governments, United States government, and governments of other nations. [Strand 1 - Citizenship and Government: 6. Tribal Nations: Evaluate the unique political status, trust relationships and governing structures of sovereign Tribal Nations and the United States.]

9.1.6.3 Compare governing structures of Tribal Nations within Minnesota and the United States. [Strand 1 - Citizenship and Government: 6. Tribal Nations: Evaluate the unique political status, trust relationships and governing structures of sovereign Tribal Nations and the United States.]

9.1.6.4 Examine contemporary challenges and successes regarding Tribal Nations and the United States government (local, state, federal). [Strand 1 - Citizenship and Government: 6. Tribal Nations: Evaluate the unique political status, trust relationships and governing structures of sovereign Tribal Nations and the United States.]

STEM Spotlight

"Native people have had connections with bison for millennia. There were 30 million bison before European contact, but only 1085 left around 1900. This planned elimination by US government policy disrupted the close and deep historical connections between people and animals."

—Paul Dressen, Director of Education, Prairie Island Indian Community



Look at the Pté (Buffalo) Robe in the display case.



This **pté** (buffalo) robe could have been made for ceremony, as a meaningful gift, to keep warm... it was made to be used.

What symbols do you see on the pté robe?

Look at the Star Quilt in the display case.



The **Star Quilt** replaced the buffalo robes as Dakota people adapted to the loss of the buffalo. With this resilient adaptation came new traditions.

How are Star Quilts used today?



Engineering and Innovation

"Traditionally, our culture has relied on personal observation and passed-down knowledge of things like medicinal plants, agricultural techniques, and hunting and fishing cycles."
—Nikki Jourdain, Environmental Specialist, Red Lake DNR



Indigenous people of Minnesota traditionally used made items using many natural resources.

List the items with connections to this resource.

Maple Tree

Birchbark

Deer

Porcupine

Berries

Bison

Basswood

fish decoy?



Pick an item from your list – what properties of this material make it an appropriate choice for this item?

Item _____

Material it is made from?

Properties of material that make it a good choice for this item?

Other materials that could be used instead?

Risks

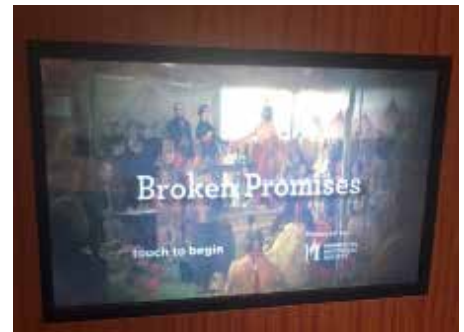
Costs

Benefits



During the 1800s, there were many catastrophic changes for Indigenous people in Minnesota. Traditional materials and animal relatives (resources) were often no longer available.

Watch the *Broken Promises* video interactive.



What reasons does *Broken Promises* give for the Dakota people's lack of access to traditional materials and animal relatives (resources)?

"Our clothing, our tipis, everything we needed for life came from the buffalo's body. It was hard to say where the animal ended and the human began."
—John (Fire) Lane Deer, 1972

Look at the Pté (Buffalo) Robe in the display case.



A **pté** (buffalo) robe is a meaningful gift – as it keeps you warm it reminds you that you are cared for.

What symbols do you see on this **pté** robe in the exhibit?



Do you see these symbols on other items in this exhibit?
Which one(s)?

Engineering is a way of addressing human needs by applying science concepts and mathematical techniques to develop new products, tools, processes, and systems. Part of the engineering process is understanding materials and revising the design of objects based on the materials available.

Choose one of the natural resources from the list in the chart on the previous page. If access to this material is no longer available to you, consider how you would redesign an object important to you or your community.



Find an object made with this material:

Why would this material be an appropriate choice for this object?

What other material(s) could be used instead? What are the trade-offs (risks, costs, benefits) for replacing the traditional natural resource?

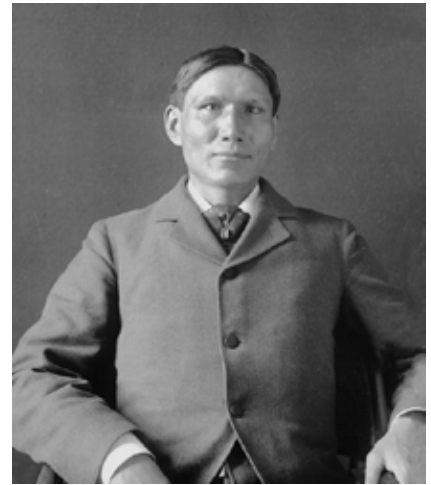
"This wilderness was a paradise. It was a land of plenty."
—Ohiyesa (Charles Eastman)

Born in 1858, Ohíyesa (Charles Eastman) was a Dakota doctor, writer, Native American activist, and co-founder of the Boy Scouts of America.

Look at the Cycle of Seasons case in the exhibit.

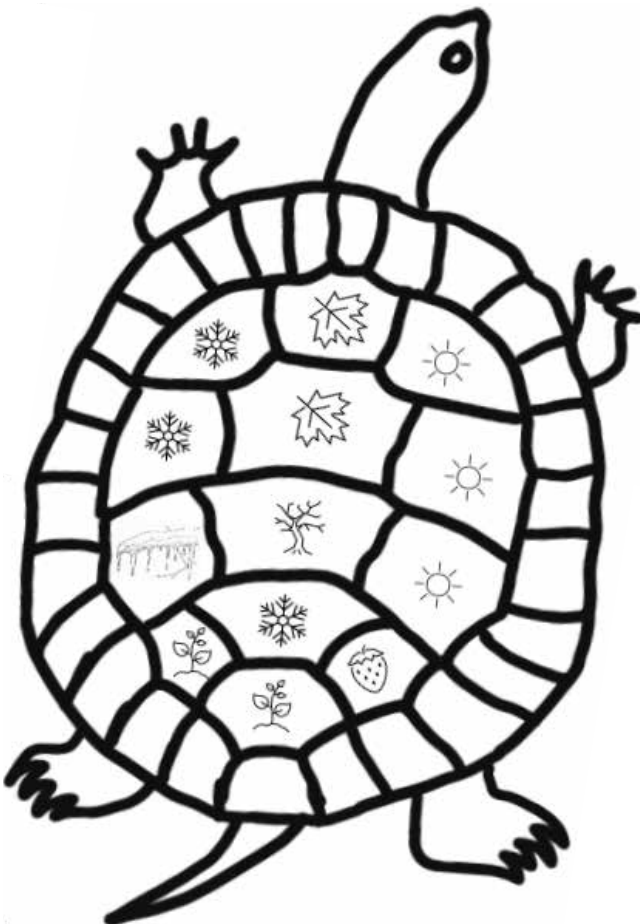
Happenings in the natural world influenced the 13 Dakota and Ojibwe month names.

The Ojibwe calendar is represented by a turtle shell, with the 13 months in the center, circles by the 28 days of each month.



What season is it?

(Shade in the sections of the turtle's shell.)



What seasons/months are represented by the icons on the turtle's shell?



List 2 activities you would be involved in during this season.

Activity	Clothing	Tools	Food Sources	Environmental Conditions



Challenge Question

Pick a natural resources important to Dakota and/or Ojibwe people. Predict what might happen to the availability of this resources if the environment around this resources changed.

For example, what would happen to the manoomin (wild rice) capacity if the lake were polluted, or if there were a drought? Describe a possible change for the resource you chose, and the potential effect of that change on the Dakota and/or Ojibwe people.