

Hooves of the Plains: Hawat / Heneecce (Buffalo)

Grades 9-12

Knowledge Holders

This lesson was created by Ace Samuels (Cheyenne, Arapaho, Choctaw) and Jennifer Santry (Choctaw, Lakota, Dakota).



Materials

- Shallow tray or pan
- Soil or dirt (enough to fill tray 2-3" deep)
- Ruler or stick
- Two cups of water
- Pencils, spoons, or hands

Objective

Buffalo have extreme cultural significance to all Plains Tribes since the beginning of time and play a vital role in grassland restoration. This is the awareness action. Through this lesson, students will see how the buffalo is not only a cultural relative but an essential ecological anchor whose return helps heal the land and build resilience against a changing climate.

Survivance Message

"Our relationship to the buffalo is very sacred. It is part of our way of life. The buffalo is a symbol of prosperity. That animal helps us provide prosperity to our people. Meaning wealth in natural resources not wealth in a monetary sense; wealth in sacredness; wealth in balance in the environment because that buffalo has a special thing that it does. Nature is a chain and it is all connected through the buffalo—the water, the insects, the flowers, the other animals. With the buffalo we are abundant in prosperity and richness in culture." – Gordon Yellowman, Cheyenne and Arapaho Historian and Cheyenne Chief.

- The Cheyenne and Arapaho people are still carrying on traditions of ceremony, food sovereignty, and storytelling through oral history and art. We used every part of the buffalo to honor their sacrifice for us. The hides are used for shelter and clothing, the tendons as string, meat for food, the bladder to hold liquids, and bones for art and tools.
- Settler-colonial myths falsely claiming that buffalo were over-grazers, slow, or disease-ridden was used to justify their mass destruction. In reality, the buffalo's unique grazing patterns are precisely what keeps our grasslands healthy and alive
- Tribal communities are actively reclaiming their future through initiatives like restoring wild buffalo herds to the plains and using storytelling and film to assert their sovereignty and vision.
- The mass slaughter of the buffalo in the 1800s was a deliberate act of genocide against Native people. It was an attempt to break our culture, food sovereignty, and connection to the land, leading to the saying: "Every buffalo dead, is an Indian gone."

The Buffalo and Climate Resilience: In a changing climate, our grasslands are facing tougher droughts and bigger wildfires. The buffalo is a keystone protector because of how it moves across the land. Unlike cattle, which chew grass down to the dirt, a buffalo uses its tongue to pull only the upper blades. This leaves the deep root systems fully intact, which helps the native grasses bounce back stronger and healthier after they've been grazed.



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Standards

This lesson aligns with national science and social studies frameworks by:

- Evaluating how keystone species like the buffalo act as natural infrastructure to prevent erosion and manage wildfire risks.
- Investigating the biological differences between how cattle and buffalo impact grassland soil.
- Discussing the historical impacts of buffalo genocide on Native people and the resurgence of modern Tribal activism.

Braiding Knowledge: Curriculum Standards

This lesson is part of a broader framework that weaves together the Next Generation Science Standards (NGSS) and Indigenous Traditional Ecological Knowledge (ITECK). We teach Western science through a localized, relational lens to honor the history and sovereignty of the land and its caretakers. For a detailed breakdown of how this lesson aligns with specific NGSS benchmarks, ITECK guidelines, and UNESCO climate action goals, please visit our [story map](#).

Arapaho Vocabulary

Heneecce (pron. Heh-NEE-chee):
Buffalo

Nec (pron. Nits): water

Niinon (pron. Nee-ee-nahn): tepee

Hoo3itoo (pron. Hooth-ee-toh): story

Hix (pron. Hihsh): bone

As buffalo move across the plains, seeds stick to their thick fur and are carried for miles, while their heavy hooves act as natural aerators, planting those important seeds deep into the soil. These actions create a resilient landscape that catches rare rainwater and naturally prevents the build-up of dry brush, acting as a living wildfire mitigation system.

Activities

How Buffalo fight the impacts of climate change? In this activity, you'll pair up in groups of 4. You will research the hoof prints of both cattle and Buffalo and recreate the prints based on the description to the best of your ability. Like our ancestors, they used every part of the Buffalo, and this is how you should be resourceful in recreating these hoof prints. Use what you have in the classroom, your hands do count.

10 Min: Feel! Review a diagram of a cattle hoof versus a buffalo hoof. Fill the tray with soil, mist it slightly so it holds an impression, and use your hands or classroom tools to carve out a series of cattle tracks on one side of the tray, and a series of buffalo tracks on the other.

"Look closely at the shapes you are molding. A cow's hoof is flat and wide, designed for flat pastures. A buffalo's hoof is sharp, curved, and carries a massive amount of front-heavy weight. Feel the difference in how these shapes press into the earth. How does the shape of a relative's foot change the texture of the soil?"

15 Min: Connect! Discuss how cattle tend to stand in one place or walk in heavy lines, creating deeply compacted, hard dirt paths. Buffalo are constantly moving on their sharp hooves, breaking up the hard crust of the earth.

"Before mass agricultural grazing, the plains experienced natural cycles of heavy rain and long drought. The idea that soil should remain undisturbed and flat is a myth; it needs to be broken up to breathe. The flat hoof of a cow acts like a steamroller, packing dirt tight. The sharp hoof of a buffalo acts like a spade, opening up the ground. How does treating all grazing animals the same affect our grasslands?"

20 Min: Play! Take your two cups of water. At the exact same time, pour one cup over the cattle tracks and one cup over the buffalo tracks. Observe how the water reacts on both sides. Record how fast the water disappears, whether it puddles on top, or if it sinks into the micro-depressions.

"After you have created your prints in the ground, pour water into each print at the same time and record what you see. Through your own knowledge or through research, explain the differences of these prints and how they impact the effects of climate change. How would this experiment assist you in buffalo restoration? How do these simple but powerful ways of being the buffalo show relationships between humans and other non-human relatives?"



Other Indigenous Vocabulary

Pesāēhkiw (pron. Peh-saeh-kew):
Buffalo in Menominee

Tatanka (pron. tuh-TAHN-kuh) or Pté
Oyáte (pron. P'tay Oh-yah-tay):
Buffalo, Buffalo Nation in Lakota

English Vocabulary

Aerator, micro-basin, grazer,
genocide, mitigation, resilience,
keystone species

Resources

[The Arapaho Project – Language](#)

[The Cheyenne and Arapaho Bison Project](#)

[Restoring Buffalo, Restoring Balance on the Northern Great Plains](#)

Brave like the Buffalo book by Melissa Allan

[Bringing Back the Buffalo](#)

[What part of the bison was used?](#)

[Horn to Hoof: The Many Uses of Buffalo](#)

[InterTribal Buffalo Council](#)

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Cattle: Water will puddle and wash away soil (erosion). This causes flash flooding and prevents rain from reaching deep root systems during a drought.

Buffalo: Sharp, deep hoof prints act as micro-basins, slowing down water and soaking deeply into the earth. Moisture retains in the landscape long after the rain stops, keeping wild native grasses green and less likely to catch fire.

Reciprocity through Stewardship

Because climate change and history have broken apart so many of our landscapes, our role as stewards is vital. Students can practice true reciprocity by gently pressing native prairie seeds into the micro-basins left in the soil. This shows children that when we feed the soil and protect the land that shelters the buffalo, we are keeping our promise to take care of the relatives who have always taken care of us.

Adaptations & Extensions

To build deeper environmental literacy, teachers can guide students through a comparative analysis of how distinct Tribal Nations maintain independent relationships with the Buffalo Relative based on their unique geographies and ancestral protocols.

- Heneecee: For the Arapaho of the open High Plains, the buffalo historically served as a structural anchor for a deeply migratory kinship model, where the herd's movements directly guided seasonal camp protocols and social structures.
- Pesāēhkiw: The Menominee of the northern woodlands demonstrate an adaptive kinship model focused on forest restoration, introducing the herds into dense timber ecosystems and agroforestry plots as an act of deliberate climate resilience and community nutrition.
- Tatanka or Pté Oyáte: The Lakota view the buffalo as a sovereign nation with whom they share a sacred treaty of mutual defense. Lakota modern management focuses heavily on political sovereignty, food independence, and restoring herds to tribal lands.

How does the landscape (the dense forests of Wisconsin vs. the wide-open plains of South Dakota) change the way a Tribe manages and lives alongside the buffalo?