

# Carrying Fire the Pikunii Way: the Fire Carrier

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2/21/2009

Revised 2/13/2020

**Lesson Overview:** Students learn how the Pikunii (Blackfeet) people met the challenge of transporting fire from one camp to another as they traveled along historical migration routes. First, students build their own campfires to learn about the technological challenge of starting a fire and protecting “live” (smoldering) coals. Then they speculate on ways to carry fire, and they examine a model of a Pikunii fire carrier.

Then they view a video in which a Blackfeet elder describes the construction and use of a traditional fire carrier. Finally, they review what they have learned using a cumulative-listening activity, in which they repeat what previous speakers have said and add their own statements.

**Subjects:** Science, Speaking and Listening, Health and Safety

**Duration:** Three half-hour sessions

**Group size:** Whole class and teams of 3-4

**Setting:** Outdoors and classroom

This lesson is an excellent complement to activities on the Fire Triangle and the science of wildland fire.

## Lesson Goals:

- Increase students’ understanding of one native people’s technology and ways of life
- Increase students’ ability to listen respectfully and contribute to a discussion
- Increase students’ understanding of combustion and their skill in handling fire safely



## Objectives:

- Students can explain or demonstrate the technological difficulty of starting a fire and transporting live coals.
- Students can explain why it was important for the Pikunii people to have continuous fire during their migrations and how the people met this challenge.
- Students can listen attentively enough to one another so they can repeat what previous speakers have said and add to the discussion.

| Standards | Elementary School      | 1st     | 2nd        | 3rd       | 4th       | 5th        |
|-----------|------------------------|---------|------------|-----------|-----------|------------|
| CCSS      | Speaking and Listening | 1,3,4,6 | 1,3,4,6    | 1,3,4,6   | 1,3,4,6   | 1,3,4,6    |
|           | Language               | 1       | 1,3,4,5,6  | 1,3,4,5,6 | 1,3,4,5,6 | 1,3,4,5,6  |
| NGSS      | Engineering Design     |         | ETS1.A,B,C |           | ETS1.A    | ETS1.A,B,C |
|           | Earth's Systems        |         |            |           |           | ESS3.C     |
| EEEEGL    | Strand 1               | A,C,E   |            |           |           | A,C,E      |
|           | Strand 2.2             |         | C          |           |           | C          |

| Standards: | Middle School               | 6th         | 7th     | 8th     |
|------------|-----------------------------|-------------|---------|---------|
| CCSS       | Speaking and Listening      | 1,2,6       | 1,2,6   | 1,2,6   |
|            | Language Standards          | 1,4,5,6     | 1,4,5,6 | 1,4,5,6 |
| NGSS       | Matter and Its Interactions | PS3.A       |         |         |
|            | Earth's Systems             | ESS3.A      |         |         |
| EEEEGL     | Strand 1                    | A,B,C,E,F,G |         |         |
|            | Strand 2.2                  | A           |         |         |

| Standards: | High School            | 9th         | 10th | 11th  | 12th |
|------------|------------------------|-------------|------|-------|------|
| CCSS       | Speaking and Listening | 1,4,6       |      | 1,4,6 |      |
|            | Language Standards     | 1,3         |      | 1,3   |      |
| NGSS       | Energy                 | ETS1.A      |      |       |      |
| EEEEGL     | Strand 1               | A,C,D,E,F,G |      |       |      |
|            | Strand 2.1             | B, C        |      |       |      |

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### Teacher Background:

Many Native American peoples developed technology and traditions so they could carry fire from one place to another. The Pikunii people (one branch of the Blackfoot Nation) of the western Great Plains and Rocky Mountain Front used fire carriers made of buffalo<sup>1</sup> horns to carry burning coals from one camp to the next and to start a fire in the new camp.



<sup>1</sup> The **Appendix** lists scientific names for all plants and animals mentioned or shown in this activity.

This was very helpful for the people as they arrived in the new camp, but the fire also served another important purpose: The fire provided spiritual and cultural continuity for the people because the same fire was used in one camp after another, even while the people traveled thousands of miles in their yearly migrations.

The Pikunii made fire carriers from a buffalo horn that was filled with pieces of wood and other fuel, arranged carefully so the fire would burn slowly but not go out. The horn had small slits in the sides to allow oxygen in so the coals would keep burning. The horn was covered on the outside with a combination of sand and dirt mixed with homemade glue, which provided insulation. Then the fire carrier was dried for several days. When it was ready for use, burning coals were placed on a flat rock inside and a few pieces of wood were placed on top of the coals. A rawhide-wrapped stone or piece of wood was placed in the open end and tied tightly in place with strips of leather.

This activity is part of *FireWorks for the Pikunii Nation*, an educational program that combines information on the way of life of the Pikunii people with information on the science and technology of wildland fire. The project was developed through a partnership between the Native Science Field Center at Blackfeet Community College, Browning, MT, and the Forest Service's Rocky Mountain Research Station Fire Sciences Laboratory, Missoula, MT. The project was supported by a Diversity Grant from the USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

For more information on this project, contact the Missoula Fire Sciences Laboratory (<https://www.firelab.org/>) or the Native Science Field Center at Blackfeet Community College (<https://bfcc.edu/native-science-field-center/>).

Many thanks to: Audrey Peterson, Cass Cairns, Chuck Haney, David Hanna, Faith Ann Heinsch, Garon Smith, Greg Dillon, Helen Augare, Ian Grob, Ilana Abrahamson, Jim McCallum, Kinnerly Croisant, Kristine Lee, Mark Pieper, Marvin Weatherwax, Maure Sand, Melissa Little Plume-Weatherwax, Nancy McMurray, Nancy Trembath, Nathan P. Birkeland, Patti Bartlett, and Rick Thompson.

This lesson has 4 parts--

- A hands-on activity and discussion in which students build small campfires and investigate various aspects of fire, such as how to start a fire, how to make it last a long time, and/or how to insulate coals so they will smolder without flaming.
- Examination of a physical model of a Pikunii fire carrier, which has been constructed to look like a real fire carrier but is NOT useable with actual coals. If you do not have access to a model of the fire carrier, you can use the photos available in [https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable\\_fire\\_carrier\\_diagram.pdf](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable_fire_carrier_diagram.pdf) or follow the directions in **Fire\_Carrier\_Supplements.pdf (Part II)** to construct one.
- A 12-minute video interview with Pikunii elder Marvin Weatherwax ([https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay\\_video.mp4](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay_video.mp4)) as he describes the importance, technology, and use of the fire carrier. The transcript for the video is available in **Fire\_Carrier\_Supplements.pdf (Part I)**.
- An **Assessment** that emphasizes understanding of fire behavior and also concise speaking and attentive, respectful listening.

**You can do this activity just with brainstorming and discussion, but it is much more engaging for students if they are first challenged to safely build a successful campfire. See Step 1 under Procedures.**

This activity can be enriched by including activities in art (possibly constructing model fire carriers from materials such as clay or sugar cones) and music (learning about traditional Pikunii drumming and singing).

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#### **Materials and Preparation:**

- Obtain a model fire carrier to show students (available from the Missoula Fire Sciences Laboratory, <https://www.firelab.org/>). If you cannot obtain a model fire carrier, download [https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable\\_fire\\_carrier\\_diagram.pdf](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable_fire_carrier_diagram.pdf) – but don't show it until **Step 6** below.
- Make sure you have access (on the Internet or downloaded) to the 12-minute video "Carrying Fire the Pikunii Way" available at [https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay\\_video.mp4](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay_video.mp4).
- For the **Assessment (Part IV)**, consider finding some quiet, wordless music or recordings of Indian drumming or singing to set the mood. Also, consider your class's ability to listen attentively throughout the activity. If that seems too difficult, break the activity up with short, wordless mimicking games (such as clapping a rhythm or doing body motions for students to mimic).

## Procedures:

### Part I. Build or imagine a campfire

1. Ask: Have you or your family ever built a campfire? What materials did you use? How did you light it? How long did it last? How did you put it out? **Short brainstorming session. Maybe list materials and tools on the board.**
2. Ask: Among all the materials and tools that we use to build a campfire, which ones were NOT available to Indian people hundreds of years ago? How did they manage without these conveniences? **Open discussion, maybe with a list on the board.**
3. Explain: In this lesson, we're going to learn about one group of Native Americans, the Pikunii ("Pih-KUN-ee") people, and how they used fire and moved it from one camp to the next. Who are the Pikunii people? **"Pikunii" (spelled in several ways, including Pikuni, Pikunni, Pikani, and Piikáni) is the name for one of the four main branches of the Blackfeet Nation (<http://blackfeetnation.com/>). The Pikunii have lived for hundreds of years in the western half of Montana, especially in the prairies east of the Continental Divide. The center of their government and culture is now in Browning, Montana.** Show it on a map. Even better, show it on Google Earth so you can zoom in and out, look at the kind of terrain in the area (mountains and prairies), and help students relate the location of Browning, Montana, to their own location.
4. If you want students to build a fire, this is the time for it. After the campfire activity, discuss how it went: What were their challenges and solutions? **Open discussion.**

This activity was written to fit with activities in the FireWorks curriculum

(<https://www.frames.gov/fireworks/home>).

If you are not using that curriculum, decide what you'd like students to do to learn about fuel arrangement, ignition, and banking coals. If you would like students to learn how to bank a fire, this website may help:

[http://www.infobarrel.com/How to Bank a Fire](http://www.infobarrel.com/How_to_Bank_a_Fire).

### Part II. Examine a model fire carrier

5. Explain: We've learned about some aspects of starting a fire and keeping it going. But those are not all of the challenges faced by the Pikunii people hundreds of years ago. Like many Native Americans, they were a migratory people – that is, they moved from one place to another throughout the seasons to obtain the foods, medicines, and other materials that they needed. They carried fire with them as they traveled. If you were asked to move a fire, how would you do it? What equipment would you need? Could you do it without modern technology, using only materials available in forests and prairies? **Discussion.**
6. Explain: Let's look at how the Pikunii carried fire. (Show the fire carrier and cross-section or display the printable version

[https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable\\_fire\\_carrier\\_diagram.pdf](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/Printable_fire_carrier_diagram.pdf)) These are *models* of a fire carrier – not the real thing. We call them “models” because they help us understand how a real fire carrier works but they contain glue and plastic materials, so they cannot actually be used to carry hot coals.

7. Explain: We will all handle the fire carrier and the cross-section, and we’ll do so with respect because they represent something very important to the Pikunii people. When the materials come to you, **either make 1 observation about it or ask 1 question about it. You may take a moment of quiet before you speak.** The rest of us will listen quietly, and I will record your questions without trying to answer them.
8. Pass the fire carrier model(s) around the class. Record questions on the board.

### Part III. Learn about carrying fire from a Pikunii elder (video)

9. Explain: We’ve made some observations and asked some questions. Now let’s listen to Mr. Marvin Weatherwax, an elder of the Pikunii people, to get answers to our questions and learn more about the fire carrier. What does it mean to be an “elder”? **An elder is not just someone who is older than other people, but someone who has a lot of knowledge and wisdom, so he or she is an authority for the people and an important teacher for children.**
10. Explain: As we view this video and listen to Mr. Weatherwax, we’re going to practice a skill that was extremely important to the Pikunii people in past centuries – LISTENING. This skill was ESSENTIAL TO THE PEOPLE’S SURVIVAL because they did not use writing to record their history and legends or to explain how to do things. There were no user manuals, no recipes in books, no online directions. Instead, they taught everything orally – that is, by speaking. If you were a Pikunii child, you needed to learn about your history and how to survive by listening very carefully and remembering EXACTLY what you heard. Then someday you could give that same information orally to the next generation, and they would listen very carefully to you.
11. FOR ELEMENTARY-AGE STUDENTS: Have students sit in a half-circle, perhaps with several rows. Remind them that, as Pikunii children, they would probably be sitting in a tipi or outdoors.
12. Explain: We’ll watch the video to see if we can find answers to our questions.
13. Show the 12-minute video “Carrying Fire the Pikunii Way” ([https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay\\_video.mp4](https://www.frames.gov/documents/fireworks/curriculum/Pikunni/FireCarrierLesson/CarryingFirePikunniWay_video.mp4)).

NOTE TO TEACHER: You can EITHER show the video without stopping – a way to encourage students to listen attentively – and discuss their questions afterward, OR

you can show it using some of the information and cues below – that is, stopping the video every now and then to see if students are finding answers to their questions and to ask them to anticipate what Mr. Weatherwax might say. Then, if students still have questions, discuss ways to find the answers.

**Fire\_Carrier\_Supplements.pdf (Part I)** contains the full transcript of the video.

| <b>Information and cues for studying “Carrying Fire the Pikunii Way”</b> |  |
|--|--|
| <b>Background:</b>   |  |
| Speaker  | Mr. Marvin Weatherwax is an elder of the Pikunii people and a teacher of Blackfeet Language and Culture at Blackfeet Community College, Browning, Montana ( <a href="http://bfcc.edu/">http://bfcc.edu/</a> ). The other voice heard on the video is the interviewer, Jane Kapler Smith, an employee of the U.S.D.A. Forest Service.   |
| Location   | The video was filmed in the Tipi Ceremonial Room at Blackfeet Community College. This room has been constructed to look and function like the inside of a tipi. It is built and ventilated so students and instructors can burn smudges and use ceremonial fires.  |
| Art work   | Several art pieces are visible in the video. They include:<br>~~A painting of running horses called “Winter Count,” created by Blackfeet Studies students at Blackfeet Community College.<br>~~Designs shown in vertical strips on otherwise plain walls. These represent decorations that are painted on the liners of Pikunii tipis.   |
| Sound  | The audio track in the video contains occasional background noise from voices. This is because the video was taped while classes were in session at Blackfeet Community College, and students in the hallways were conversing as they moved from class to class. In addition, Mr. Weatherwax moved around the room while he described the annual migration of the Pikunii people, so some sections of the audio have varying volume and an “echoey” sound. |
| <b>Cues for the video:</b>   |  |
| <b>0:45</b>  | <b>Interviewer asks, “How did they do that [carry fire], and why? Have students answer the question.</b>   |
| 1:06   | Take note of the surroundings. We are inside the Tipi Ceremonial Room, and the background is dominated by the “Winter Count” painting referred to above.   |
| 1:23   | Shows plains prickly-pear, a type of cactus.   |
| <b>1:40</b>  | <b>Mr. Weatherwax says that, after fire, the land will “renew.” Ask: What does “renew” mean?</b>   |
| 1:43   | Shows quaking aspen sprouting from a top-killed tree after fire.   |
| 1:49   | Mr. Weatherwax refers to “pharmacies.” <b>Ask: What does that mean?</b> (He is referring to any materials that can be used for health and healing. For more information about his and others’ remarkable work in healing, see <a href="http://nativenews.jour.umt.edu/native2011.html">http://nativenews.jour.umt.edu/native2011.html</a> .)   |

|              |  |
|--------------|--|
| 1:54         | The bright yellow flower is arrowleaf balsamroot.  |
| 1:54         | Mr. Weatherwax refers to various plants as “weeds.” <b>Ask: What do you think he means?</b> (He is NOT referring to plants that are unwanted, but rather to plants that grow aggressively after the trees have been removed.)  |
| 1:56         | Shows glacier lily   |
| 2:11         | Shows willow leaves and western yarrow leaves and flowers  |
| 2:17         | <b>Interviewer asks, “Why was it important to carry fire from one camp to the next?” Ask students to answer.</b>   |
| 3:32         | <b>After the discussion of continuity and “It was a very spiritual meaning,” Ask: What do you have in your life that ensures continuity – what knowledge or things get passed on from generation to generation?</b>  |
| 4:35         | <b>Mr. Weatherwax points to slits on the sides and bottom of the fire carrier. Ask: What might those be for?</b>   |
| 5:11 & after | Mr. Weatherwax mentions using “hardwoods” because they burn a long time and “softwoods” because they are easy to ignite. The softwoods he is referring to include pine, Douglas-fir, and fir species. The hardwoods include aspen, cottonwood, chokecherry, sarvisberry (also called Saskatoon serviceberry), birch, willow, and buffaloberry. Buffaloberry was used because the wood smells bad when it burns—a warning to the runner that the fuels are nearly all burned. |
| 6:49         | <b>The interviewer asks, “How long do you think fire would last in a fire carrier?” Ask students what they think.</b>  |
| 7:06         | <b>The interviewer asks, “Who carried fire for the people?” Ask: What would make a person good at carrying fire?</b>   |
| 8:36         | This begins the section on the Cycle of the Buffalo, the Pikunii people’s annual migration. Here is a guide to place names that you could locate on a map or using Google Earth:<br>Augusta (Aw-GUS-tuh)<br>Choteau (SHOW-toe)<br>Calgary (CAL-guh-ree)<br>Cypress Hills<br>Great Falls<br>Pincher Creek<br>Shelby   |
| 9:08         | Mr. Weatherwax refers to “Ulm Pis’kun,” a cliff formation in west-central Montana that was used as a buffalo jump (a way to hunt and kill plains buffalo in large numbers). “Pis’kun,” also spelled “Pishkun,” is the Pikunii word for “buffalo jump.” Ulm Pishkun lies within First People’s Buffalo Jump State Park ( <a href="http://stateparks.mt.gov/first-peoples-buffalo-jump/">http://stateparks.mt.gov/first-peoples-buffalo-jump/</a> ) in Montana.                |

|       |  |
|-------|--|
| 9:24  | Shows several buffalo. The one on its back is wallowing in dust to reduce parasites and soothe bites on the skin.  |
| 9:45  | Shows sarvisberry leaves and berries (also called Saskatoon serviceberry)  |
| 10:07 | Shows common chokecherries   |
| 10:12 | Shows blue huckleberries   |
| 10:14 | Shows limber pine cones. The seeds of these trees and of whitebark pines are very large and nutritious.  |
| 10:25 | <b>The interviewer asks, “Do the Pikuni still carry fire?” Ask: Do you think it is still important to carry fire?</b>  |
| 11:31 | <b>The interviewer mentions “Sharing knowledge about the Pikuni way.” Ask: How have you learned about your own way of life? Have you had a special family member or teacher who was especially helpful? How could you go about becoming an elder for your school, family, community, or country?</b> |

#### Part IV. Assessment:

15. FOR ELEMENTARY STUDENTS: Have students sit in a circle on the floor, as if inside a tipi.
16. Start some quiet, wordless music if you think that will help set a listening mood for the class.
17. Explain: We are going to use a cumulative-listening activity to review what we’ve learned. It is important for us to share knowledge, but it is **just as important to show that we can learn from one another by listening well**, just as we listened to Mr. Weatherwax in the video. “Cumulative” means that our knowledge will accumulate – it will get bigger and bigger – as we progress through the activity.
18. Explain: Each student will hold the fire carrier and say ONE SENTENCE about it, then pass it on to the next student. **When it is your turn, repeat what the last student said and then add your one sentence. (To make this more challenging, increase the number of statements that should be repeated – 2 or 3 or try to get them all!)** This means you must listen to everyone rather than be just thinking of what you are going to say when it is your turn. It is OK to take a moment of quiet to think before you speak. We will listen respectfully even during moments of silence. If you cannot remember what previous students said, ask them politely to repeat it. If you cannot think of anything to add, raise your hand and I will suggest an idea or ask a question to help.
19. Start the activity. If a student makes a serious error, correct it quietly and gently. If it is too difficult for your students to listen quietly through the whole circle, break the activity up with short, wordless mimicking games (such as clapping a rhythm or doing body motions for students to mimic). Or have the class work in a small group

(4-5 students) and remember everyone's statements. If you need to keep the discussion moving, try some of these prompts:

- Who are the Pikunii people? **The Pikunii are a native American people, one branch of the Blackfeet Nation.**
- Where did the Pikunii live in the times of the buffalo? **The traditional territory of the Pikunii was thousands of square miles in central and western Montana, east of the Continental Divide.**
- Where do the Pikunii live now? **Pikunii people live all over the world, but their cultural center and the center of government for the Blackfeet Nation are on the Blackfeet Reservation in Montana, centered in the town of Browning.**
- Why did the Pikunii travel so much? **The most important resource for the Pikunii people was the buffalo. The people needed to travel so they could be near the herds of buffalo as they moved and grazed throughout the western Great Plains. The people also needed to travel so they could collect other foods and medicines, which could only be found in certain places at certain times of the year.**
- Did the Pikunii ever burn the land? Why? **They did burn the land to “clean up” their camps and to regenerate the plants that they needed for foods and medicines.** (Additional information: Other traditional uses of fire included burning to improve forage, to defend a camp against enemies, and to keep enemies away.)
- What is a fire carrier? **A fire carrier is something that holds smoldering coals so they can be moved safely from one place to another. Many native peoples in the Americas used fire carriers.**
- Why were fire carriers important to the Pikunii people? **Fire carriers were convenient because the people could move to a new camp and have a fire ready to use when they arrived. But fire carriers were even more important as a sign of continuity. The people had the same fire day after day, year after year, even though they moved from one place to another throughout the year.**
- How does the fire carrier's design protect the runner from getting burned? **The clay around the fire carrier provides insulation, and the fire inside burns very slowly so it doesn't produce as much heat as an open campfire.**
- How are “hardwoods” and “softwoods” used differently in a fire carrier? **Softwoods are used in the inner ring of fuels because they are easy to ignite. Hardwoods are used in the outer ring because they burn a long time.**
- How is a fire carrier made? **See the [video](#) and the directions in [Fire\\_Carrier\\_Supplements.pdf \(Part II\)](#) for details.** Follow-up questions could address the materials used, the steps in construction, the fuels used, and their arrangement.

- Who carried fire for the Pikunii and how did they learn? **Good runners were selected to carry fire because they needed to get to the next camp and prepare it before the rest of the people arrived. The runners learned from others who had carried fire before them.**
- What would a runner do if the fuels in a fire carrier were almost all burned up? **The runner would stop and transfer the coals to another fire carrier.**
- ***If you are using the FireWorks curriculum:*** How does the Fire Carrier include all parts of the Fire Triangle while making sure that the fire burns very slowly? **The fire carrier contains lots of sticks and moss as FUEL. SMOLDERING COALS are its source of heat. OXYGEN comes in slowly through the slits in the sides and at the tip of the carrier.**
- Can you think of additional ways to carry fire that would not use modern technology? **Open-ended question. Might include ceramics, baskets, animal bones, thick and damp hides, turtle shells...**

**Evaluation:**

| <b>Activity</b>                            | <b>Full credit</b>  | <b>Partial credit</b>  | <b>No credit</b>   |
|--|---|--|--|
| Building a campfire                        | Worked safely and carefully. Listened respectfully to other team members. Contributed suggestions. Helped team work together. | Worked safely and carefully. Listened respectfully to other team members. Contributed suggestions. | Ignored safety precautions, did not participate with others on team, or dominated project without input from other team members. |
| Examining fire carrier, listening to video | ~~Handled fire carrier gently.<br>~~Offered 1 observation or question.<br>~~Listened respectfully to video.                   | Met 2 of the 3 criteria under <b>Full credit.</b>  | Met 0-1 of the 3 criteria under <b>Full credit.</b>  |
| Cumulative listening activity              | ~~Repeated previous 2 speakers' statements.<br>~~Contributed 1 sentence with accurate information.                            | Met 1 of the criteria under <b>Full credit.</b>  | ~~Did not repeat previous 2 speakers' statements accurately.<br>~~Did not contribute 1 sentence with accurate information.       |

## Appendix. Scientific names of plants and animals shown or mentioned in this lesson

| Common name                        | Scientific name   |
|------------------------------------|---|
| buffalo                            | <i>Bos bison</i>  |
| sarvisberry/Saskatoon serviceberry | <i>Amelanchier alnifolia</i>  |
| arrowleaf balsamroot               | <i>Balsamorhiza sagittata</i>   |
| glacier lily                       | <i>Erythronium grandiflorum</i>                                       |
| blue huckleberry                   | <i>Vaccinium membranaceum</i>   |
| common chokecherry                 | <i>Prunus virginiana</i>  |
| limber pine                        | <i>Pinus flexilis</i>   |
| whitebark pine                     | <i>Pinus albicaulis</i>   |
| willow                             | <i>Salix species</i>  |
| western yarrow                     | <i>Achillea millefolium</i>   |
| elk                                | <i>Cervus elaphus</i>   |
| cottonwood                         | <i>Populus species</i>  |
| quaking aspen                      | <i>Populus tremuloides</i>  |
| pine                               | <i>Pinus species</i>  |
| Fir, Douglas-fir                   | <i>Abies species</i> and Douglas-fir ( <i>Pseudotsuga menziesii</i> ) |
| birch                              | <i>Betula species</i>   |
| buffaloberry                       | <i>Shepherdia canadensis</i>  |
| prickly-pear                       | <i>Opuntia species</i>  |