



Montana
Office of Public Instruction
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Indian Education for All
Montana State Parks Lesson Plan
Missouri Headwaters State Park
 January 2010 (revised)

Title

Introduction to Ethnobotanical Uses of Native Plants along the Missouri River

Content Areas

Social Studies; Science; Speaking and Listening; Reading

Grade Level

5th-8th

Duration

3 50-minute class periods and 1 homework assignment

Montana Education Standards and Benchmarks

Indian Education for All

Essential Understanding 1: There is great diversity among the 12 tribal Nations of Montana in their languages, cultures, histories and governments. Each Nation has a distinct and unique cultural heritage that contributes to modern Montana.

Montana Content Standards

Social Studies Content Standard 3: Students apply geographic knowledge and skills (e.g., location, place, human/environment interactions, movement, and regions). *Rationale: Students gain geographical perspectives on Montana and the world by studying the Earth and how people interact with places. Knowledge of geography helps students address cultural, economic, social, and civic implications of living in various environments.*

Benchmark 3.2: Students will locate on a map or globe physical features, natural features, and human features and explain their relationships within ecosystems.

Benchmark 3.3 Students will analyze diverse land use [practices] and explain the historical and contemporary effects of this use on the environment, with an emphasis on Montana.

Speaking and Listening Content Standard 2: Students distinguish among and use appropriate types of speaking and listening for a variety of purposes. *Rationale: Everyday, people must make decisions about the purpose of communication... They must choose appropriate methods of communicating effectively with different types of audiences... Delivery choice must also fit the presentation.*

Benchmark 2.3 Students will speak and listen effectively for an expanded range of purposes.

Benchmark 2.4 Students will identify and appropriately use different types of presentations.



Reading Content Standard 1: Students construct meaning as they comprehend, interpret and respond to what they read. *Rationale: Readers actively engage with text to build their own understanding. Thus, readers understand what they read as it relates to what they know... As readers construct meaning, they interpret what they read [by] selecting important ideas and details.*

Benchmark 1.4 Students will demonstrate understanding of main ideas and select important supporting facts and details.

Benchmark 1.5 Students provide accurate, detailed summaries using key elements of appropriate reading material.

Reading Content Standard 4: Student select, read, and respond to print and non-print material for variety of purposes. *Rationale: Readers require a purpose to read related to personal, academic and civic needs and [may] respond in a variety of ways, including writing and discussion, as well as through artistic expression, formal presentation, media, etc.*

Benchmark 4.2 Students will read to organize and understand information, and to use material to investigate a topic (e.g., reference material, manuals, public documents, newspapers, magazines and electronic information.)

Benchmark 4.3 Students will read, interpret, and apply information to perform specific tasks (e.g., maps, travel books, manuals, and catalogs).

Benchmark 4.7 Students will identify, locate, read and interpret information from a variety of documents and sources (e.g., graphs, tables, policy statements, television, and Internet sources).

Overview and Objectives

The Missouri Headwaters, near Three Forks, Montana, is an area that was used historically and prehistorically by nearly all of Montana's contemporary Indian tribes, as well as others that no longer reside in Montana, such as the Shoshone, Nez Perce, Arikara, Mandan, and Hidatsa. Located along a major intertribal east-west trade route and a much-used north-south travel route, the land comprising the Missouri Headwaters State Park represents a confluence of many cultures. For over 12,000 years the Headwaters region was a common meeting point for tribes, as the river and its riparian areas provided many opportunities to gather resources and exchange goods with other tribes. Plains and Plateau tribes hunted bison, elk, deer and antelope along the Missouri River. Nearby, the Madison Buffalo Jump drew tribes from hundreds of miles away, and stone quarries throughout Headwaters region supplied early tribes with a variety of types of rock for tool making. (Stone from these quarries was traded or sold to other tribes, some of them thousands of miles away.) In addition, the river sometimes marked tribal territorial boundaries, and inter-tribal battles and raids were not infrequent along its course, as the tribes knew others would be camped along the river during hunting and harvesting times and sometimes took advantage of the situation to raid for horses or to attack enemy tribes.

In this lesson, students will focus on two aspects of the Missouri river: its geography in relation to Montana's tribes and the historical and contemporary uses of plants along the river by one of the region's tribes (Apsáalooke or Crow). This lesson includes mapping activities, plant research, and student presentations. Each student will choose or be assigned one of the plants from a list of plants used by the Crow tribe for food or medicine. Using the print and online resources listed in the "Materials and Resources" section of this lesson, each student will research his or her plant and fill in an ethnobotany chart for that plant. Once all of the students have completed their charts, students will present their information to the class. Finally, the teacher will display the charts in the classroom or hallway for students to appreciate.

It is highly recommended that the teacher obtain and use the compatible science curriculum listed below for use in conjunction with this lesson, as it will enhance students' knowledge about the Missouri River and the importance and functions of riparian and watershed areas.

Recommended Compatible Science Curriculum

Discover a Watershed: The Missouri River Educator's Guide (Award-winning guide contains 36 science and culture lessons on the Missouri River as well as introductory materials and maps).

http://store.projectwet.org/index.php?main_page=product_info&products_id=52

Materials and Resources Needed

- ✓ Computers
- ✓ Internet access to the websites listed here.
- ✓ Highway map of Montana (free) from MDOT: http://mdt.mt.gov/mdt/comment_form.shtml (You will need one map per pair of students.)
- ✓ Apsáalooke place names database: <http://lib.lbhc.edu/index.php?> (Under “Crow Resources”)
- ✓ Map of Tribal Territories in Montana, circa 1855: See page 124 in *Montana, Stories of the Land*, by Krys Holmes, Montana Historical Society Press, 2008. Print or view online at: <http://www.mhs.mt.gov/education/textbook/Chapter7/Chapter7.pdf> (Scroll down to page 124) (You can locate the textbook at <http://mhs.mt.gov/education/textbook/textbookmainpage.asp>)
- ✓ Map of Montana Indian Reservations today: (See state highway map listed above)
- ✓ Blank Map of Montana Rivers: See <http://www.mhs.mt.gov/education/textbook/Maps.asp> Click on the rivers map. (One map per student. Print these using the largest paper available to you, so that students have room to write on them.)
- ✓ Map worksheet instructions (Attachment A)
- ✓ Ethnobotany worksheet with chart and instructions (Attachment B)
- ✓ Ecosystem definition and types: <http://en.wikipedia.org/wiki/Ecosystem>
- ✓ Discover Montana's Ecosystems: <http://fwp.mt.gov/education/ecosystem/home.html> (Use for definitions of ecosystem, riparian zone, and can look at some plant species here by following links to montane and plains.)
- ✓ Plants observed by Lewis and Clark along the Missouri River: <http://www.plantsystematics.org/reveal/pbio/LnC/LnCpublic7.html> (Note: Excellent close-up photographs; brief descriptions underneath with common English names.)
- ✓ Montana Native Plants: <http://montana.plant-life.org/> (Photos, descriptions, English and botanical names, habitat types)
- ✓ Wildflower photos: http://montanakids.com/plants_and_animals/Plants/Wildflowers.htm (Scroll over name to see images. Photos and common/English names only.)
- ✓ Book: *Medicinal Wild Plants of the Prairie, An Ethnobotanical Guide*, by Kelly Kindscher, University of Kansas Press, 1992. ISBN 0-7006-0527-4 (You will only need one copy of this book. It is available at the University of Montana –Missoula and Montana State University –Bozeman and other libraries in the state.)
- ✓ Book: *Montana Native Plants and Early Peoples*, by Jeff Hart, Montana Historical Society Press. Two editions of this book are available and either will do. Request in advance through Interlibrary Loan if it is not at your school or public library.

✓ Book: *A Taste of Heritage: Crow Indian Recipes and Herbal Medicines*, Alma Hogan Snell, University of Nebraska Press, 2006.

✓ Brochure: “Missouri Headwaters State Park Interpretive Guide.” To obtain this guide, please contact Missouri Headwaters State Park at 406-994-4042.

Activities and Procedures

Teacher Preparation: Arrange for use of computers with internet and printers for class periods 1 and 2. (Printers not needed for Class Period 1.) Teacher should also obtain all of the materials on the Materials and Resources list; ask your school librarian for assistance if you need to obtain them through Interlibrary Loan. One or two copies of the books will suffice, as students can take turns using them.

Class Period 1: Missouri River Geography

For this period you (and students) will need the maps listed in the Materials and Resources section and the Interpretive Guide to Missouri River State Park. Students will also need: Attachment A (Instructions for Mapping Activity), colored pencils, one fine-tipped dark marker each, pencils, paper, the maps above, and a computer with internet access to the Crow tribal place names website.

1. Introduce the lesson to your students, using the Overview to this lesson. Be sure to let students know that many tribes used the Missouri River and its tributaries. (<5 minutes)
2. Mapping activity: Students can work in pairs to do the mapping exercises. Provide each pair of students with a Montana highway map. Provide each student with a blank map of Montana’s rivers. Print or display the map of Montana tribal territories, circa 1855, so that students can use it for reference and also print or display the attached map of Montana’s Indian Reservations as they are today. Please remind students that before 1855, tribal territories overlapped even more and most of the tribally used territories were much greater than they are on the 1855 map, which is the result of treaties with the United States.(5 minutes)
3. Students should fill in the map according to the instructions on Attachment A. If your students have access to only one computer in your classroom, please number the pairs and have them rotate in order, allowing about 2-3 minutes per pair (assuming the website is kept on the screen so they do not have to type in the web address each time.) (20-30 minutes)
4. Once students have completed their maps, lead a short discussion about the maps and what students can learn from them, using the questions listed below. (10 minutes)
 - How do the Crow names for these rivers describe the rivers or the resources they found there? (Big River, Elk River--later Horse River, Cherry or Berry River, Where the river is straight)
 - Notice the boundaries of tribal territories in 1855. What physical features mark most of these boundaries? (Rivers, mountain ranges)
 - Compare the locations of today’s Indian reservations with the tribal territories in 1855. How are they different? (Much smaller, isolated from one another, not all tribes that were in Montana in 1855 have reservations here today, etc.)
 - Are any reservations located along the Missouri River or its tributaries? (Fort Peck)
 - Why do you think only one of them is located along the Missouri River? (Whites wanted the river for its resources and for river travel, and to establish farms, railroads and towns along it. Also, the river had much of the big game animals along it, so it provided most of the food for incoming settlers.)

5. Pass out the Missouri Headwaters State Park Interpretive Guide to your students. These are for students to keep and take home. (If you like, you can assign it to be read for homework or create an additional assignment with this resource.)

Class Period 2: Ecosystems, Riparian Habitats, and an Introduction to the Ethnobotany of the Apsáalooke (Crow) Tribe

For this period, you will need all of the ethnobotany related materials listed above (books, access to the websites, etc.), computers with printer access and internet, Attachment B (Instructions and Chart for Ethnobotany Research), and the materials on ecosystems and riparian zones.

1. Using the web-materials provided, introduce your student to the concept of an ecosystem and the types of ecosystems found along the Missouri River. Also introduce them to the term “riparian zone” which refers to the habitats along rivers and streams, where many plants and animals are found. (5 minutes).
2. Pass out Attachment B (2 pages) to the students. Read aloud the Introduction on this page. (5 minutes)
3. Assign each student a plant from the list on Attachment B, or allow students to choose from the list (so long as no two students are doing the same plant). If there are additional unassigned plants, either assign them to students who want to do more than one or choose one yourself, or simply do not do the “leftover” plants. (3 minutes)
4. Read aloud the instructions for the research and indicate to students where the print resources can be found. All of the plants on this list are available in at least most of the resources suggested in this lesson. Instruct them to gather as much information as possible about the Crow use of these plants and to give detailed descriptions of that usage (i.e., instead of writing “medicine” students should write: “used roots, boiled and made into a poultice, to treat rashes and snakebites”). (2 minutes)
5. Students should do their research in class, as much as possible, and if they need to complete the work at home, make sure they write down the web addresses for the online resources. They will need to be able to print photos or line drawings of the plants they are researching. Students should work on their ethnobotany charts for the remainder of the period. (35 minutes or as needed).

Class Period 3: Student Presentations and Wrap-up

For this period, students will need their completed ethnobotany charts and space and materials for displaying them in the classroom or hallway.

1. Allow each student about 3 minutes to present his or her plant to the class.
2. Following the presentations, allow students to display their charts.
3. As a wrap-up homework assignment, students should respond in writing (a few sentences each) to the following questions:
 - What can be gained by learning about the traditional uses of natural resources, such as plants, by the indigenous peoples of Montana?
 - How might this information be useful to American society today?
 - How is ethnobotanical knowledge useful to scientists who study the environment and the impacts of changes (land-use, climate, occupation, etc.) on the environment?
 - What is one interesting thing that you learned in this lesson that you did not know prior to this lesson?

Assessment

Participation in class discussions and small group activities, research and writing assignments, and presentations.

Extension Activities

- Visit Missouri Headwaters State Park (For directions see:
<http://www.fwp.mt.gov/parks/visit/parkSiteDetail.html?id=281910>)
- Visit other state parks and historical sites along the Missouri River.
- Research the ethnobotany of other tribes along the Missouri River.
- Study the Missouri River watershed.
- Research other tribes' place names for rivers (or other geographical features) in Montana.
- Map and research the fur trade posts and forts along the Missouri river and tribes' interactions with fur traders, military and other newcomers to this region.

Attachments

Attachment A: Instructions for Mapping Activity

Attachment B: Apsáalooke Ethnobotany Research Project—Chart and Instructions

Attachment A: Instructions for Mapping Activity

Using the blank map of Montana's rivers, you will be building a map of the territories of Montana's tribes around the year 1855. These territories were defined at that time by a series of treaties between the United States government and the tribes. Before 1855, many of the tribes' land-use territories were much larger than they are on the 1855 map. Follow the instructions below to complete your map.

1. Locate the following rivers and places on the Montana state highway map and label them on your blank river map:

- Missouri River
- Headwaters State Park
- Gallatin River
- Jefferson River
- Madison River

2. Using the website (<http://lib.lbhc.edu/index.php?>) of Apsáalooke place names, search by the river names above for the Apsáalooke names for these rivers and label them accordingly on your map. If you have to wait to use a computer, please begin the next activity and work on it until your teacher indicates it is your turn to use the computer.

3. Using the 1855 map, lightly color in the tribal territories on the map (each in a different color) and label them. (If there is not enough room to write tribes' names on the map, you can make a color-coded key to the tribal territories.) Notice that the boundaries of these territories are often along mountain ranges and rivers.

4. Refer to the map of Montana's Indian Reservations today. Using a fine-tipped dark marker, carefully draw the present-day boundaries of these reservations on your map and label them.

Extra Credit Homework: Find additional tribal names for the Missouri River and its tributaries (from any tribe in Montana). Tributaries include: Musselshell River, Judith River, Marias River, Teton River, Sun River, Smith River, Milk River, Poplar River, Redwater River. Also, you might note that just outside of Montana, the Yellowstone river empties into the Missouri, so go ahead and search for it as well. You can list these on a separate piece of paper under the heading of the English/American name for each river. Be sure to indicate after each name the tribe who used that name. You will have to search online for these names. You can also use print resources in your library.

Attachment B—Apsáalooke (Crow) Ethnobotany Research Project

Introduction: The headwaters of the Missouri are located in what many Montanans still call “Crow Country”—part of the territory inhabited by the Crow tribe (Apsáalooke) since they arrived in Montana sometime around 1620. You will have noticed from the geography activity in the Missouri River’s headwaters—the Jefferson, Gallatin and Madison Rivers, begin in the high mountains of southwestern Montana. The Missouri river travels northward for many miles before it turns east through the prairies of the northern portion of the state. This eastward part of the river includes the homelands of the Blackfeet, Gros Ventre (White Clay or A’aninin), and Assiniboine (Nakoda) tribes, as well as the Mandan and Hidatsa on the far eastern edge, and the Cree and Chippewa tribes who moved into the region in the 1800s. One group of Crow, the River Crow, also lived in the north-central portion of the state, along the Musselshell and Judith Rivers (and the Missouri), where they were allied with the Gros Ventre. All of these tribes, in addition to those who traveled from other regions, used the plants along the rivers for many uses, including food, tool-making, ceremonial purposes, and medicine.

The study of a culture’s use of plants is called ethnobotany. In this part of the lesson, you will be researching some of the ethnobotanical uses of plants by the Apsáalooke tribe. These plants either grew along the riparian zones (the plant-rich areas along the edges of streams or rivers) of the Missouri or its tributaries or grew nearby in the intermontane (foothill) or prairie ecosystems through which the Missouri River and its tributaries flow. It is very likely that all of these plants were also used by other tribes as well, although tribes had some culturally unique uses for some of these plants.

Within the Apsáalooke tribe, certain people specialized in the usage of particular plants. For instance, only some women were knowledgeable about which plants were best for childbirth, for instance, or for specific ailments. Plant usage, particularly for medicinal or spiritual purposes, was generally passed down from one generation to the next within a family, so sometimes certain families were the historic repositories of information regarding certain types of plants. Today, some Crow people continue to use medicinal and spiritually important plants that were used by their ancestors. One Apsáalooke herbalist, Alma Hogan Snell, learned about medicinal plants from her grandmother, Pretty Shield. To continue the tradition, she taught many others how to use those plants and wrote a book on the subject. Many of the plants she used are on the list below and will be the topics of this research project.

Instructions: Each student will choose or be assigned one of the plants from the list below. Using the print and online resources listed in the “Materials and Resources” section of this lesson, each student will research his or her plant and fill in an ethnobotany chart for that plant. (Chart is attached, below the list.) Once all of the students have completed their charts, students will present their information to the class. Finally, the teacher will display the charts in the classroom or hallway.

Plant list: Chokecherry, Juneberry (Service Berry), Wild Onion, Prickly Pear, Evening Primrose, Mullein, Cattail, Cottonwood, Buffalo Berry, Prickly Pear, Willow, Horsetail, Yarrow, Wild Plums, Wild Rose, Bitterroot, Sage, Prairie Coneflower, Mint, Beebalm (Monarda), Wild Turnip, Wild Onion, Snakeweed, Bear root, Wild Asparagus, Wild Licorice, Raspberries, Golden Current.

Student's Name:
Date:
Plant Name (English/common name):
Plant Name (Scientific):
Plant Name (Crow, if given):
Plant Name (other Montana tribes, indicate which tribe):
Plant Habitat:
Description of Plant's Usage by Apsáalooke people (parts of plant used, how used and what used for):
Description of plant's use by other historical or current Montana Tribes:
Illustration: