User Guide
Provided by The Montana Historical Society
Education Office
In cooperation with
The Montana Preservation Alliance
(406) 444-4789
www.montanahistoricalsociety.org

Funded by a Grant from the E.L. Wiegand Foundation

Table of Contents

Inventory

Borrower: _____ Booking Period: _____

The borrower is responsible for the safe use of the footlocker and all its contents during the designated booking period. Replacement and/or repair for any lost items and/or damage (other than normal wear and tear) to the footlocker and its contents while in the borrower's care will be charged to the borrower's school. **Please have an adult complete the footlocker inventory checklist below, both when you receive the footlocker and when you repack it for shipping, to ensure that all of the contents are intact.** After you inventory the footlocker for shipping to the next location, please mail or fax this completed form to the Education Office.

ITEM	BEFORE USE	AFTER USE	CONDITION OF ITEM	MHS USE
1 PowerPoint				
1 National Register directory				
1 *Treehouses* book				
1 *The Treehouse Book*				
1 Montana Highway map				
4 Posters				
3 Historic photographs				
1 *Andy Goldsworthy: A Collaboration with Nature* Book				
1 Brick				
1 Stone				
1 Log				

(continued)

ITEM	BEFORE USE	AFTER USE	CONDITION OF ITEM	MHS USE
1 Cedar Shake				
1 Hewn log				
1 piece tanned Leather				
1 Piece of lumber				
1 *Stonehenge* DVD				
1 *Building Big* DVD				
1 *Great Lodges* video				
1 *A Field Guide to American Houses* book				
1 *Identifying American Architecture* book				
Montana's Most Endangered 2002, 2003 cards				
1 User Guide				
2 padlocks				

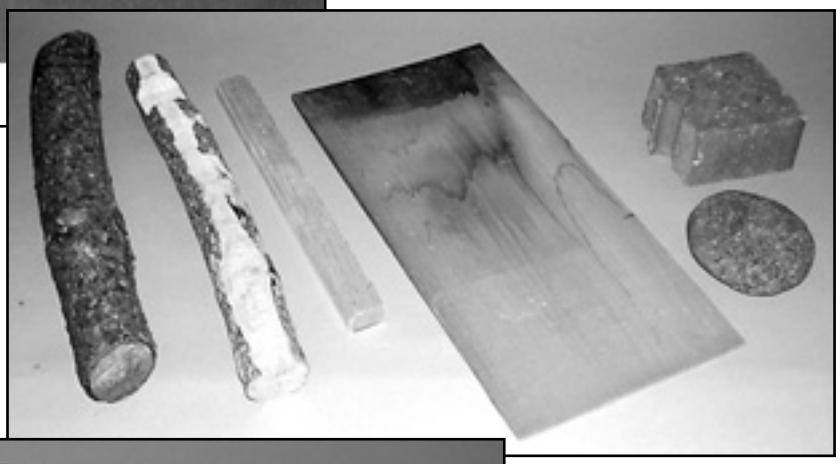
Education Office, Montana Historical Society, PO Box 201201, Helena, MT 59620-1201
Fax: 406-444-2696, Phone: 406-444-9553, MHSeducation@mt.gov

Teachers Name_____ Phone number _____

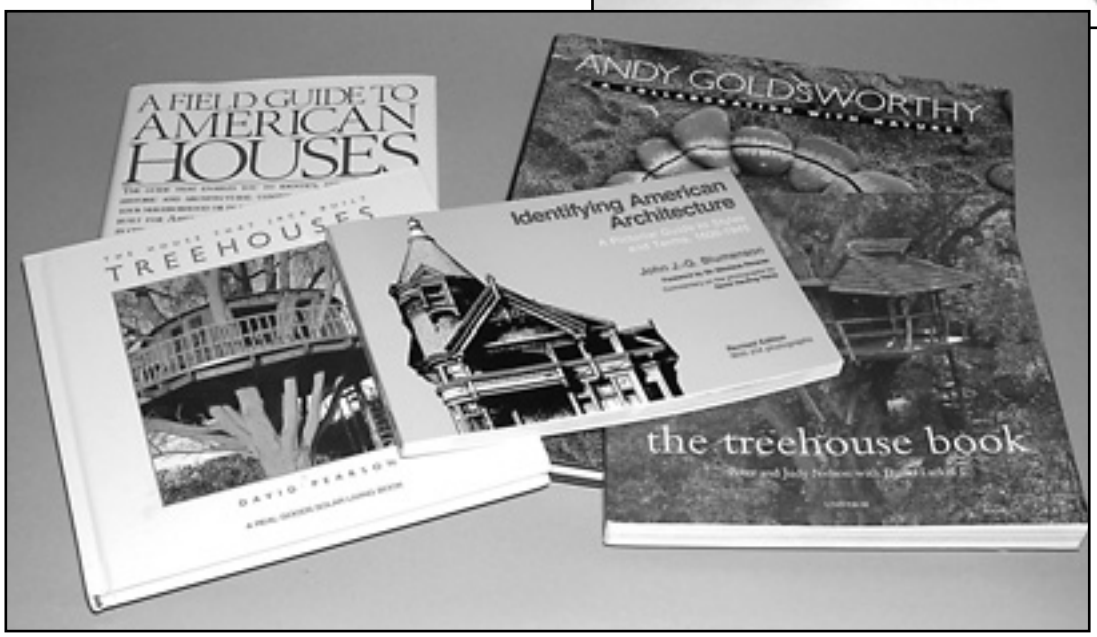
School_____ Footlocker Reservation Dates _____

Footlocker Contents

Left: posters



Right: log, hewn log, piece of lumber, cedar shake, brick, stone



Left: books

Footlocker Use–Some Advice for Instructors

How do I make the best use of the footlocker?

In this User Guide you will find many tools for teaching with objects and primary sources. We have included teacher and student level narratives, as well as a classroom outline, to provide you with background knowledge on the topic. In section one there are introductory worksheets on how to look at/read maps, primary documents, photographs, and artifacts. These will provide you and your students valuable tools for future study. Section three contains lesson plans for exploration of the topic in your classroom—these lessons utilize the objects, photographs, and documents in the footlocker. The "Resources and Reference Materials" section contains short activities and further exploration activities, as well as bibliographies.

What do I do when I receive the footlocker?

IMMEDIATELY upon receiving the footlocker, take an inventory form from the envelope inside and inventory the contents in the "before use" column. Save the form for your "after use" inventory. This helps us keep track of the items in the footlockers, and enables us to trace back and find where an item might have been lost.

What do I do when it is time to send the footlocker on to the next person?

Carefully inventory all of the items again as you put them in the footlocker. If any items show up missing or broken at the next site, your school will be charged for the item(s). Send the inventory form back to:

Education Office, Montana Historical Society, Box 201201, Helena, MT 59620-1201 or fax at (406) 444-2696.

Who do I send the footlocker to?

At the beginning of the month you received a confirmation form from the Education Office. On that form you will find information about to whom to send the footlocker, with a mailing label to affix to the top of the footlocker. Please insure the footlocker for $1000 with UPS (we recommend UPS, as they are easier and more reliable then the US Postal Service) when you mail it. This makes certain that if the footlocker is lost on its way to the next school, UPS will pay for it and not your school.

What do I do if something is missing or broken when the footlocker arrives, or is missing or broken when it leaves my classroom?

If an item is missing or broken when you initially inventory the footlocker, **CONTACT US IMMEDIATELY** (406-444-4789), in addition to sending us the completed (before and after use) inventory form. This allows us to track down the missing item. It may also release your school from the responsibility of paying to replace a missing item. If something is broken during its time in your classroom, please call us and let us know so that we can have you send us the item for repair. If an item turns up missing when you inventory before sending it on, please search your classroom. If you cannot find it, your school will be charged for the missing item.

Footlocker Evaluation Form

Evaluator's Name _____ Footlocker Name _____

School Name _____ Phone _____

Address _____ City _____ Zip Code _____

1. How did you use the material? (choose all that apply)

☐ School-wide exhibit ☐ Classroom exhibit ☐ "Hands-on" classroom discussion

☐ Supplement to curriculum ☐ Other_____

2. How would you describe the audience/viewer? (choose all that apply)

☐ Pre-school students ☐ Grade school—Grade____ ☐ High school—Grade____

☐ College students ☐ Seniors ☐ Mixed groups ☐ Special interest

☐ Other_____

2a. How many people viewed/used the footlocker?_____

3. Which of the footlocker materials were most engaging?

☐ Artifacts ☐ Documents ☐ Photographs ☐ Lessons ☐ Video

☐ Audio Cassette ☐ Books ☐ Slides ☐ Other_____

4. Which of the User Guide materials were most useful?

☐ Narratives ☐ Lessons ☐ Resource Materials ☐ Biographies/Vocabulary

☐ Other_____

5. How many class periods did you devote to using the footlocker?

☐ 1-3 ☐ 4-6 ☐ More than 6 ☐ Other_____

6. What activities or materials would you like to see added to this footlocker?

_____

_____

(continued)

Footlocker Evaluation Form *(continued)*

7. Would you request this footlocker again? If not, why?

8. What subject areas do you think should be addressed in future footlockers?

9. What were the least useful aspects of the footlocker/User Guide?

10. Other comments.

Montana Historical Society Educational Resources Footlockers, Slides, and Videos

Footlockers

Architecture: It's All Around You—Explores the different architectural styles and elements of buildings, urban and rural, plus ways in which we can preserve buildings for future generations.

Cavalry and Infantry: The U.S. Military on the Montana Frontier—Illustrates the function of the U.S. military and the life of an enlisted man on Montana's frontier, 1860 to 1890.

Coming to Montana: Immigrants from Around the World—Showcases the culture, countries, traditions, and foodways of Montana's immigrants through reproduction clothing, toys, and activities.

Daily Life on the Plains: 1820-1900—Includes items used by American Indians, such as a painted deerskin robe, parfleche, war regalia case, shield, Indian games, and an educational curriculum.

Discover the Corps of Discovery: The Lewis and Clark Expedition in Montana—Traces the Corps' journey through Montana and their encounters with American Indians. Includes bison hide, trade goods, books, and more!

East Meets West: The Chinese Experience in Montana—Explores the lives of the Chinese who came to Montana, the customs that they brought with them to America, how they contributed to Montana communities, and why they left.

From Traps to Caps: The Montana Fur Trade—Gives students a glimpse at how fur traders lived and made their living along the creeks and valleys of Montana, 1810-1860.

Gold, Silver, and Coal—Oh My!: Mining Montana's Wealth—Chronicles the discoveries that drew people to Montana in the late 19th century and how the mining industry developed and declined.

Inside and Outside the Home: Homesteading in Montana 1900-1920—Focuses on the thousands of people who came to Montana's plains in the early 20th century in hope of make a living through dry-land farming.

Lifeways of Montana's First People—Emphasizes the various tribal lifeways of the people who utilized the land we now know as Montana in the years around 1800.

(continued)

Contemorary American Indians in Montana—Highlights the renaissance of Montana's Indian cultures and their efforts to maintain their identities and traditions.

Prehistoric Life in Montana—Exposes Montana prehistory (10,000-12,000 years ago) and archaeology through a study of the Pictograph Cave prehistoric site.

Stones and Bones: Prehistoric Tools from Montana's Past—Uncovers Montana's prehistory and archaeology through a study of reproduction stone and bone tools. Contains casts and reproductions from the Anzick collection found in Wilsall, Montana.

The Cowboy Artist: A View of Montana History—Presents over 40 Charles M. Russell prints and hands-on artifacts that open a window into Montana history by discussing Russell's art and how he interpreted aspects of Montana history.

The Home Fires: Montana and World War II—Describes aspects of everyday life in Montana life during the 1941-1945 war years. Illustrates the little-known government projects such as the Fort Missoula Alien Detention Center and Civilian Public Service Camps.

The Treasure Chest: A Look at the Montana State Symbols—Provides hands-on educational activities that foster a greater appreciation of our state's symbols and their meanings.

Tools of the Trade: Montana Industry and Technology—Surveys the evolution of tools and technology in Montana from late 1700s to the present.

Woolies and Whinnies: The Sheep and Cattle Industry in Montana—Reveals the fascinating stories of cattle, horse, and sheep ranching in Montana, 1870 to 1920.

(continued)

SLIDE UNITS

Children in Montana—Presents life in Montana through photographic images of children.

Fight for Statehood and Montana's Capital—Outlines how Montana struggled to become a state and to select its capital city.

Frontier Towns—Illustrates the development, character, and design of early Montana communities.

Jeannette Rankin: Woman of Peace—Portrays the life and political influence of the first woman elected to Congress.

Native Americans Lose Their Lands—Examines the painful transition for native peoples to reservations.

Power Politics in Montana—Covers the period when the copper industry influenced state politics.

The Depression in Montana—Examines the Depression and federal project successes in Montana.

The Energy Industry—Discusses the history and future of the energy industry in Montana.

Transportation—Describes the development and influence of transportation in the state.

(continued)

VIDEOS

Bella Vista—Reveals the story of 1,000 Italian detainees at Fort Missoula's Alien Detention Center between 1941 and 1943.

For This and Future Generations—Tells the compelling story of 100 grassroots delegates and a staff of some of the best and brightest young people under the Big Sky, who gathered in Helena in 1972 for what many would recall as the proudest time of their lives. Their task: to re-write the lumbering, old state constitution. Two months later, all 100 delegates unanimously signed a document that would affect the lives of generations of Montanans to come.

Hands-On History!—Teaches how history can be fun through the experiences of ten Montana kids as they pan for gold, go on an architectural scavenger hunt, and commune with former residents in Virginia City. Accompanied by lesson plans.

"I'll ride that horse!" Montana Women Bronc Riders—Captures the exciting skills and daring exploits of Montana's rich tradition of women bronc riders who learned to rope, break, and ride wild horses, told in their own words.

Montana: 1492—Describes the lifeways of Montana's first people through the words of their descendants.

Montana Defined by Images: An Artist's Impression—Surveys Montana's artistic landscape over the last 30 years and looks at the work of contemporary Montana artists and the ways in which they explore issues of transition and conflicting needs in a changing physical and cultural landscape.

Montana State Capitol Restoration—Captures the history, art, and architecture of Montana's State Capitol prior to the 1999 restoration. Created by students at Capital High School in Helena.

People of the Hearth—Features the role of the hearth in the lives of southwestern Montana's Paleoindians.

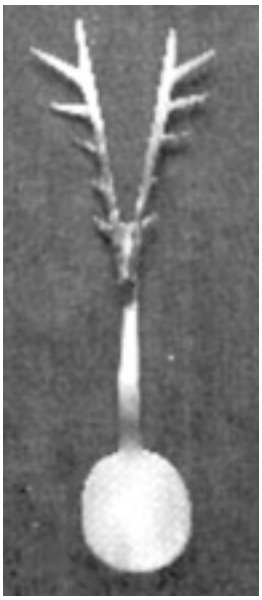
Russell and His Work—Depicts the life and art of Montana's cowboy artist, Charles M. Russell.

The Sheepeaters: Keepers of the Past—Documents the lifeways of a group of reclusive Shoshone-speaking Indians known as the Sheepeaters. Modern archaeology and anthropology, along with firsthand accounts of trappers and explorers, help to tell their story.

Sacagawea of the Northern Shoshoni—Traces the amazing life story of Sacagawea and her experiences with Lewis and Clark Expedition. Created by students at Sacajawea Middle School in Bozeman.

Primary Sources and How to Use Them

The Montana Historical Society Education Office has prepared a series of worksheets to introduce you and your students to the techniques of investigating historical items: artifacts, documents, maps, and photographs. The worksheets introduce students to the common practice of using artifacts, documents, maps, and photographs to reveal historical information. Through the use of these worksheets, students will acquire skills that will help them better understand the lessons in the User Guide. Students will also be able to take these skills with them to future learning, i.e. research and museum visits. These worksheets help unveil the secrets of artifacts, documents, maps, and photographs.



MONTANA HISTORICAL SOCIETY

See the examples below for insight into using these worksheets.

Artifacts

Pictured at left is an elk-handled spoon, one of 50,000 artifacts preserved by the Montana Historical Society Museum. Here are some things we can decipher just by observing it: It was hand-carved from an animal horn. It looks very delicate.

From these observations, we might conclude that the spoon was probably not for everyday use, but for special occasions. Further research has told us that it was made by a Sioux Indian around 1900. This artifact tells us that the Sioux people carved ornamental items, they used spoons, and they had a spiritual relationship with elk.

Photographs

This photograph is one of 350,000 in the Montana Historical Society Photographic Archives. After looking at the photograph, some of the small "secrets" that we can find in it include: the shadow of the photographer, the rough fence in the background, the belt on the woman's skirt, and the English-style riding saddle.

Questions that might be asked of the woman in the photo are: Does it take a lot of balance to stand on a horse, is it hard? Was it a hot day? Why are you using an English-style riding saddle?

MONTANA HISTORICAL SOCIETY

(continued)

MONTANA HISTORICAL SOCIETY

Documents

This document is part of the Montana Historical Society's archival collection. Reading the document can give us a lot of information: It is an oath pledging to catch thieves. It was signed by 23 men in December of 1863. It mentions secrecy, so obviously this document was only meant to be read by the signers.

Further investigation tell us that this is the original Vigilante Oath signed by the Virginia City Vigilantes in 1863. The two things this document tell us about life in Montana in the 1860s are: there were lots of thieves in Virginia City and that traditional law enforcement was not enough, so citizens took to vigilance to clean up their community.

Maps

This map is part of the map collection of the Library of Congress. Information that can be gathered from observing the map includes: The subject of the map is the northwestern region of the United States—west of the Mississippi River. The map is dated 1810 and was drawn by William Clark. The three things that are important about this map are: it shows that there is no all-water route to the Pacific Ocean, it documents the Rocky Mountains, and it shows the many tributaries of the Missouri River.

LIBRARY OF CONGRESS

How to Look at an Artifact

(Adapted from the National Archives and Records Administration Artifact Analysis Worksheet.)

Artifact: An object produced or shaped by human workmanship of archaeological or historical interest.

1. What materials were used to make this artifact?

☐ Bone	☐ Wood	☐ Glass	☐ Cotton
☐ Pottery	☐ Stone	☐ Paper	☐ Plastic
☐ Metal	☐ Leather	☐ Cardboard	☐ Other_____

2. Describe how it looks and feels:

Shape _____ Weight _____

Color _____ Moveable Parts _____

Texture _____ Anything written, printed, or stamped on it

Size _____ _____

Draw and color pictures of the object from the top, bottom, and side views.

Top	Bottom	Side

(continued)

3. Uses of the Artifacts.

A. How was this artifact used? _____

B. Who might have used it?_____

C. When might it have been used?_____

D. Can you name a similar item used today? _____

4. Sketch the object you listed in question 3.D.

5. Classroom Discussion

A. What does the artifact tell us about technology of the time in which it was made and used?

_____

_____

B. What does the artifact tell us about the life and times of the people who made and used it?

_____

_____

How to Look at a Photograph

(Adapted from the National Archives and Records Administration Photograph Analysis Worksheet.)

Photograph: an image recorded by a camera and reproduced on a photosensitive surface.

1. **Spend some time looking at the whole photograph. Now look at the smallest thing in the photograph that you can find.**

   What secrets do you see? _____

   _____

   _____

2. **Can you find people, objects, or activities in the photograph? List them below.**

   People _____

   _____

   Objects _____

   _____

   Activities _____

   _____

3. **What questions would you like to ask of one of the people in the photograph?**

   _____

   _____

4. **Where could you find the answers to your questions?**

   _____

   _____

How to Look at a Written Document

(Adapted from the National Archives and Records Administration Written Analysis Worksheet.)

Document: A written paper bearing the original, official, or legal form of something and which can be used to furnish decisive evidence or information.

1. Type of document:

☐ Newspaper ☐ Journal ☐ Press Release ☐ Diary
☐ Letter ☐ Map ☐ Advertisement ☐ Census Record
☐ Patent ☐ Telegram ☐ Other_____

2. Which of the following is on the document:

☐ Letterhead ☐ Typed Letters ☐ Stamps
☐ Handwriting ☐ Seal ☐ Other _____

3. Date or dates of document: _____

4. Author or creator: _____

5. Who was supposed to read the document? _____

_____

6. List two things the author said that you think are important:

1. _____

2. _____

7. List two things this document tells you about life in Montana at the time it was written:

1. _____

2. _____

8. Write a question to the author left unanswered by the document:

_____

_____

How to Look at a Map

(Adapted from the National Archives and Records Administration Map Analysis Worksheet.)

Map: A representation of a region of the earth or stars.

1. What is the subject of the map?

☐ River ☐ Stars/Sky ☐ Mountains
☐ Prairie ☐ Town ☐ Other _____

2. Which of the following items is on the map?

☐ Compass ☐ Scale ☐ Name of mapmaker
☐ Date ☐ Key ☐ Other _____
☐ Notes ☐ Title

3. Date of map: _____

4. Mapmaker: _____

5. Where was the map made: _____

6. List three things on this map that you think are important: _____

_____

_____

_____

7. Why do you think this map was drawn? _____

_____

8. Write a question to the mapmaker that is left unanswered by the map.

_____

Standards and Skills

State 4th Grade Social Studies Standards

Lesson Number:	1	2	3	4	5	6	7
Students access, synthesize, and evaluate information to communicate and apply social studies knowledge to real world situations.		✔	✔	✔	✔		✔
Students analyze how people create and change structures of power, authority, and governance to understand the operation of government and to demonstrate civic responsibility.							✔
Students apply geographic knowledge and skill (e.g., location, place, human/environment interactions, movement, and regions).	✔		✔			✔	
Students demonstrate an understanding of the effects of time, continuity, and change on historical and future perspectives and relationships.	✔	✔	✔	✔		✔	✔
Students make informed decisions based on an understanding of the economic principles of production, distribution, exchange, and consumption.							
Students demonstrate an understanding of the impact of human interaction and cultural diversity on societies.	✔		✔		✔	✔	✔

(continued)

Skill Areas

Lesson Number:	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Using primary documents			✔				
Using objects							
Using photographs		✔	✔			✔	
Art	✔	✔	✔	✔	✔	✔	
Science							
Math			✔				
Reading/writing		✔	✔				✔
Map Skills	✔	✔		✔	✔		
Drama, performance, re-creation							
Group work	✔						
Research			✔				✔
Music							
Bodily/Kinesthetic						✔	
Field Trip	✔					✔	✔

Historical Narrative for Fourth Graders

Give Us Shelter

Living creatures, from the smallest to the largest, seek shelter. Bird nests, animal dens, insect hives – they all provide shelter from the weather or from danger. People are no different, we build shelters to protect us from the sun and rain, wind and cold. We build with materials that nature gives us, joining floors to walls, and walls to ceilings to form quiet places that are secure, protected and sheltered from the great outdoors.

Native American Architecture

The first people in North America developed a variety of shelters that fit the climate and their way of life. Most common in the Montana region were convenient natural shelters like caves, and they built circular shelters from stone, wickiups from slabs of wood or poles, and movable tipis covered with hides.

European-American Architecture

When Europeans came to the New World, they brought their architectural ideas along with them. Log cabins and simple stone buildings were erected by new settlers in America. As the United States pushed their borders to the West, pioneers constructed these buildings across the continent. In Montana, log and stone buildings were common and are still built today. Tar paper shacks, sod huts, canvas tents and other temporary buildings were also used when natural building materials were scarce. These were replaced as soon as better building supplies became available.

The Montana Landscape

Montana is a large state that stretches from the plains across the Continental Divide and on into the rugged Rocky Mountains. The country is big and the population relatively small. Most of our state is rural, and is supported by farming and ranching, by harvesting natural resources such as timber or minerals, and by outdoor recreation. Our landscapes include a few small cities, hundreds of small towns, and a scattering of farm houses, barns, grain elevators and other farm buildings. Mine shafts and smelters, refineries, sawmills and hydropower dams tell the industrial story of our state. Elsewhere, grand hotels, railroad depots, theaters, libraries, schools, churches and courthouses reflect how culture grew as towns took hold across Montana during the past century and a half of our history.

Saving the Past for the Future

Montana's borders contain a treasure that awaits your discovery. The architecture in Montana's towns and countryside is unique and wonderful. Shaped by the knowing hands of craftsmen and carpenters, the architecture of Montana provides us with shelter and places to call home. Many buildings that people created in the past have lived on into the future, to remind us of where we came from and link us to our history. The treasures of history must be cared for over time if they are to survive. In our generation, we have safeguarded two of Montana's great architectural treasures – by restoring Montana's Capitol and by rescuing the buildings and artifacts of Virginia City from being sold off. And every day, people who care about preserving Montana's architectural riches help out by repairing the old barn or putting a new coat of paint on the historic house, making sure that they will be there for many years to come.

Historical Narrative for Instructors

Montana architecture blends folk building ideas with formal design. We begin with a rich body of indigenous architecture – domestic lodges, ceremonial structures, warrior fortifications and hunting constructions that were native to the plains and rocky mountain region in Montana.

Domestic lodges were always portable, since native people in our region were nomadic and moved seasonally through the land. They encamped and lived within home territory, often returning to places yearly where hunting was good and other natural resources were available to them. In addition to natural caves and rock shelters, in the plains environs the earliest constructed shelters were small skin-covered conical lodges, a forerunner to the tipi. In the mountains and valleys in the Rocky Mountains, native architecture included earth lodges. With the introduction of horses, native people shifted from a foot culture to a horse culture, and the increased mobility allowed for larger size lodges, and the tipi was born. More roomy and highly portable with a horse, this building system of tipi poles and skin lodge covers created a living space that was comfortable, aesthetic and elegantly suited to the lifestyle of Montana's native people.

The circle and the order of four was basic to the structural geometry of native architecture and community geography in our region. The geography of encampments was all based upon a circular arrangement, with orientation to the four directions and places of honor for respected leaders and families. Ceremonial dance circles and stone structures were built in a circular patterns rich with symbolism and traditional meaning. The skin-covered tipi and its cousin the pole-walled wickiup were based upon the functional yet simple form of the cone, while the sweat lodge were a dome woven of poles and covered with skins.

When Europeans entered this scene, they brought with them a square mind-set, that was based upon 90 degree angles. Their buildings had square corners, roofs peaked at a 45 degree pitch, and a linear gridded layout to towns and settlements. Early camps and townsites were arranged on plans inspired by European urban roots—with buildings closely arranged to create streetscapes lined by buildings. False front buildings and orderly landscape design gave shape to young towns and made them feel secure and permanent as the pioneers created settled towns in new country.

Buildings of the settlement period were made with the materials that people could readily gather within their surrounding environment – log cabins, sod houses and stone huts. But quickly, refined building materials like brick, glass, and milled lumber were made available by steamboat, railroad and increasingly through local manufacturing.

Log cabins, workers' cottages and miners' shacks on the frontiers of settlement drew from age-old traditions, skills and methods of construction that were handed down from one generation to the next. But as industrialization took hold, this began to change. Trade skills and crafts began to incorporate manufactured materials and design ideas evolved. During the late 19th century, the discipline of formal architecture which historically had been reserved building of major structures, evolved and became more widely used in ordinary buildings – homes, stores and agricultural buildings.

(continued)

A proliferation of printed building plans and recommended practices changed popular construction forever. Many who had been builders and draftsmen began to specialize as architects, and the area of building design grew.

Styles and aesthetic ideas spread from urban places, and American architecture grew complex and rich. These new ideas translated well in the growing communities in Montana, and as builders and owners emulated things they saw in more populated parts of the country, our towns and communities became diverse collections that reflected awareness and appreciation for architectural trends in the nation. Today, this rich tapestry is one of our greatest legacies, a reflection of our history and collective heritage that we have come to treasure.

Outline for Classroom Presentation

I. Give Us Shelter

A. Living creatures, from the smallest to the largest, seek shelter.

B. Humans build shelters to protect us from the elements of weather, climate, and from danger.

II. Native American Architecture

A. Montana's first people used natural shelters including caves and rock shelters.

B. Indigenous buildings included stone circle enclosures, wickiups, and movable hide-covered lodges.
   1. Small lodges in the pre-horse era, tipis after horses were introduced.
   2. Tipis are still used today.

III. European American Architecture

A. Europeans brought their architecture to the New World.
   1. Log cabins and simple stone buildings were built by settlers across America.
   2. Tar paper shacks, sod huts, canvas-walled tents and other temporary buildings were replaced as soon as better building supplies were available.

B. In Montana, log and stone buildings are still built today.

IV. The Fine Craft of Building

A. People who settled Montana brought skills with them.

B. Ethnic groups had specialized crafts and building designs from the Old World.
   1. Croatian and Italian stonework, Scandinavian log buildings, Dutch barns, French buildings

V. Building Big

A. Growing population and industry gave rise to Montana's most ambitious projects.
   1. Industrial – Mines of Butte, Anaconda Stack, Fort Peck Dam,
   2. Cultural – Gallatin Gateway Railroad Inn, Glacier Park Hotel, Washoe Theater, St. Helena Cathedral

(continued)

VI. The Montana Landscape

A. Montana is a large, rural state.

B. Our landscapes include a few small cities, hundreds of small towns, and a scattering of barns, grain elevators and other farm buildings.

C. Mine shafts and smelters, refineries, sawmills and hydropower dams represent industrial history.

D. Hotels, depots, theaters, libraries, schools, churches and courthouses reflect how culture grew here.

VII. Saving the Past for the Future

A. Montana's borders contain a treasure that awaits your discovery.

B. Montana architecture links us to our history.

C. The treasures of history must be cared for over time if they are to survive.

D. State restoration of Montana's capitol and rescue of Virginia City has preserved two important historical treasures.

E. People working to preserve our architectural heritage can make a difference.

Vocabulary List

Architecture—The art of designing and constructing buildings.

Construction—The act of making a building or structure.

Design—Planning the layout and measurements for a building.

Encampment—A place where people gather for a number of days, and put up tipis or tents to stay in.

Landscape—The natural surroundings to a place.

Lintel—The top beam of a structure that rests upon two upright supports. Post and lintel construction dates back to ancient times.

Loft—The upper level in a barn commonly used to store hay and other feed for livestock.

Preservation—Protecting a place or a building so that it will last into the future.

Rock Shelter—A natural rock overhang that forms a protected place beneath it. In ancient times these formed natural shelters where people could camp and live for part of the year.

Shelter—***noun:*** An enclosure built for protection from weather, climate or danger. ***Verb:*** The process of building an enclosure for protection.

Style—Ways of designing and constructing buildings that are commonly used by a group of people.

Timbers—Heavy lengths of wood used for building.

Wickiup—A conical building constructed by Native Americans of timbers and split wood.

Amazing Montanans—Biography

John Gustave Link and Charles Sidney Haire – Architects

JGL: I am John Gustave Link, and I grew up in Bavaria, a region of Germany. After grammar school in my hometown of Hattnau, I attended the Royal Academy at Lindau where I studied design. I graduated at the young age of 17 and then came to the United States in 1887, moving to Denver where I developed my skills by working for two different architects. I was a devoted student of architecture and loved the fine arts, and during my time in Denver I often wandered the countryside with my easel and paintbrush, creating many glowing watercolor paintings.

In those days, architectural competitions were held to determine who would design new state capitols and my entry for the Minnesota State Capitol won first prize in a national competition. Shortly after that, in 1893, I moved to the mid-west to St. Louis. There I met Miss Martha Welling, who agreed to become my wife in 1895. The following year I moved to Helena, Montana to work with the state architect J.C. Paulson., to assist with drawing the plans for the new Montana State Capitol. I opened my own practice in Montana and made my home in the growing young state, raising my daughter and 5 sons there. In 1904 we moved my work and our home to Billings, and I remained there throughout the rest of my life.

CSH: My name is Charles Sidney Haire, and I was born and raised in Cincinnati, Ohio. After I graduated from high school in 1876, I taught school for 3 years while learning the skills of drafting and building design. I next worked as a draughtsman, moving west to work for the Union Pacific Railroad in Idaho.

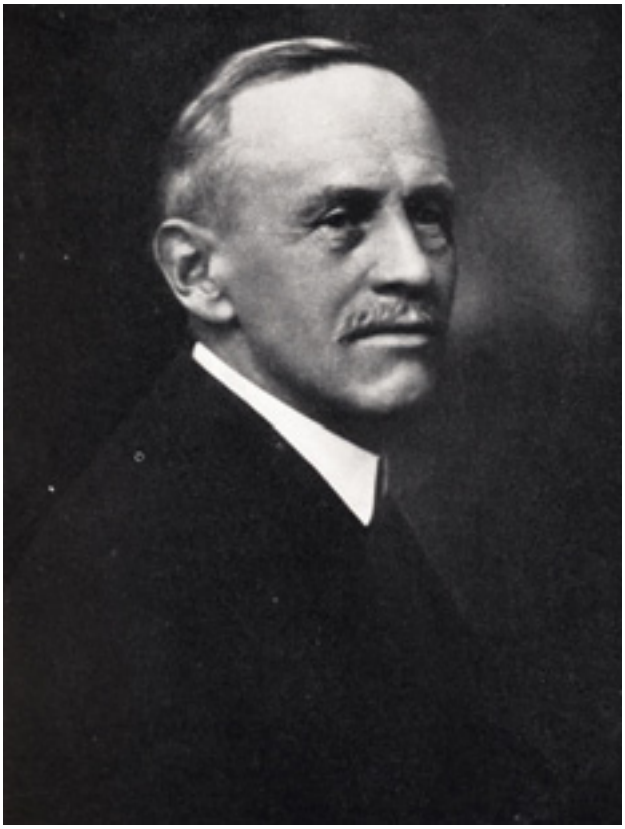
MONTANA HISTORICAL SOCIETY

John Gustave Link

It was an exciting time, the nation's major railroads were all building and expanding, and I soon went to Butte, Montana to work for the Great Northern Railway. In 1889, I moved to Helena, to work in a firm that was designing, erecting and selling new buildings in the capitol city. That year, I married Miss Frances Corwin, who was also from Ohio, and we settled in to live in the newly founded state.

I joined partnership with my fellow architect, John G. Link, in 1906. Soon our business was booming and we hired and trained many young architects to work with us. At one point

(continued)



MONTANA HISTORICAL SOCIETY

Charles Sidney Haire

our company had over 7 offices. Together we established the most prominent architectural firm in Montana, and designed many of the state's most impressive buildings. We also worked in the Dakotas, Wyoming, Idaho and Washington, and in all designed more than 100 schools, 50 churches, 30 courthouses, 40 hospitals, and 50 office buildings. When state government outgrew the Montana Capitol, we designed the wings to enlarge it. My partner J.G. Link designed practically every building in the town of American Falls, Idaho and the Montana Building for the World's Fair that was held in St. Louis in 1904. We loved architecture and it showed in our work.

Among my favorite buildings were the exotic Algeria Shrine Temple that became Helena's Civic Center, and the Electric Building in Billings where we had our main office. We designed it with lighted glass panels in the front of the building and at night the front of the building would shine far and wide when it was lit up.

My partner John G. Link was an inspiring teacher and passed down his knowledge to the younger generation. My son Tom, and Link's sons John G., Jr and Elmer were among our students. When we retired we handed off our business to the Link boys and they kept the firm going for many more years.

Lesson 1: Shelter: The Places We Call Home

Objectives

At the conclusion of the lesson students will be able to:

- Define and discuss the concept of shelter
- Discuss the elements needed for shelter
- Interpret a floorplan and draw one

Time

2 hrs or two one-hour period

Materials

- Footlocker Materials: Slides—"Give Us Shelter"; Treehouse Books; Montana Map
- User Guide Materials: Master: "Historic Story Mansion Floor Plan;" Master—"Native American House Types;" Script for Slides—"Give Us Shelter"
- Teacher Provided Materials: Slide Projector; 14" x 17" Drawing Paper; Notepad Paper; Photocopies of the *Historic Story Mansion Floor Plan*

Pre-Lesson Preparation

All people need food, clothing and a roof over their head. Shelter is something that all people and all societies create. The kind of shelters people build reflects their world and the ways that they live. Across Montana's landscape today there are buildings and shelters that tell the story of people in the past, how they created a way of life here and how they carved out a place to call home.

Warmth from the cold, a place to get in out of the wet, protection from the wind, storage for food supplies, security from marauding animals and people are among the primary concerns when creating shelter. Natural shelters such as caves and rock overhangs were used for thousands of years by people in Montana. People also built from nature, stacking rock, logs and poles to shape walls. More recently, we have built with manufactured building materials: milled lumber, fired brick, cut stone, and glass. These materials expanded the possibilities for construction, although many of the basic considerations about protection from the elements remained the same.

Procedure

Part 1 WALKABOUT

1. Explore with your class what one needs to be secure and protected from the elements. The usual cycles of the seasons and the climate, along with the extremes of nature are the factors that determine what kind of shelter people need.
2. Orient the students by looking at the Montana map and considering: Montana's geography and the patterns of weather that shape their lives. The eastern high plains, windy and sunbaked are far different than the forested valleys of western Montana.
3. Discuss Native American house types with your students.
4. Project slides of shelter and buildings through Montana history.
5. Take students on a walkabout in the neighborhood surrounding your school. Have them take notes to record their observations about shelter.

(continued)

Discussion Questions

1. What are the common elements on homes and buildings?
2. What are the common materials, shapes, landscaping?
3. What things tell you something about the climate? (ie. sheltered doorways, storm windows, chimneys, storm doors, entry porches, enclosed walls.)
4. Where are the places where you can see the divide between inside space and the great outdoors? (ie. doorways, windows, walls, foundations.)
5. How are our buildings suited to Montana's climate?
6. What kind of a home would you create under your part of the Big Sky?

Procedure:

Part 2 TREEHOUSES

1. Review the design ideas and observations that students noted on their walkabout
2. Go over the sample floorplan included for the historic Story Mansion. Note the scale and the features as they relate to the discussion above.
3. Discuss the magical buildings in the books about treehouses.
4. Then have students create detailed designs and floor plans for their very own treehouses, using the shelter considerations discussed from part 1.

Discussion Questions

1. How are treehouses different from other kinds of buildings? How are they the same?
2. How will people get into a treehouse?
3. Who will use your treehouse? What will they do there?
4. What kind of tree will you choose? How might that influence the design?

Further Explorations

- Using cardboard, have students create a model of their ideal treehouse.
- Using popsicle sticks, create a piece of furniture for your treehouse. Use a scale of 1" = 1'.

Slides: Give Us Shelter

1. **Pictograph Caves:** Caves and rock shelters were used by native people in our region for thousands of years.
2. **Pictograph Caves:** They provided natural housing and protection from the weather.
3. **Pictograph from inside the Caves:** People camped in them seasonally in a lifestyle built around hunting and harvesting plants and the resources of the land.
4. **Tipi:** Tipis originated in North America and are still used today. Warmed by a campfire in the center and vented through a smoke hole at the top, tipis provided shelter to generations of Indian people in even the coldest Montana winters.
5. **Tipi:** The tipi design uses poles cut from straight young trees creating a cone-shaped framework over which hide coverings were hung. Tipi covers were anchored at the bottom with large rocks, and when the tipi was taken down the rocks remained in place. Thousands of stone rings still mark the landscape in Montana where tipis once stood.
6. **Modern Tipi:** After contact with European Americans, tipi makers began sewing the covers out of heavy canvas. Tipis are still used today.
7. **Wickiup:** Wickiups were a less common form of shelter used by Native Americans in our region in historic and ancient times. They were built in forests and places where slender trees or slabs of log could be collected readily.
8. **Wickiup:** Built of log poles lined up close together to form the walls, wickiups were a conical structure much like the tipi.
9. **Wickiup:** Today, you may still stumble across an old wickiup, but due to weather, fire and removal there are very few left.
10. **Wall Tents:** When the first non-native people came to settle this region, they often used temporary structures until a more permanent building could be completed. Canvas tents were common in mining camps and military forays into what would become Montana.
11. **"Bachelors" Log Cabin:** Montana pioneers cut trees from virgin forests to build Montana's first log cabins. Log buildings were very common in the days before saw mills and railroads that brought in building materials.
12. **Pioneer Cabin:** Because they fit our rugged landscape, they have remained popular here for over a hundred years. This pioneer cabin in Helena, built the year gold was discovered in Last Chance Gulch, is the oldest building in town.
13. **Log Cabin:** This cabin in Nevada City also dates to the early mining camp days, and is typical of the small, simple cabins that new arrivals to Montana lived in during the gold rush years.

(continued)

14. **Sod House:** Sod houses were knicknamed "soddies" and were built mostly during the homestead era when hopeful farmers settled Montana's plains.

15. **Sod House:** In places where there were few trees, people used their ingenuity to cut thick swatches of sod from the earth and stack them up to form walls. They were a way of making do until a better house could be built.

16. **Sod House:** This sod house was remembered by a girl who grew up nearby as being "very comfortable inside. The walls were about two feet thick. It was cool in summer and much warmer than the board house[s] in the winter."

17. **Stone Jail:** Stone buildings were sturdy and fireproof. This building was actually a jail, made very strong by the stout stone walls that were laid up very carefully.

18. **Stone House:** This stone house near Terry, Montana was a dugout building, built back into the earth. They were common on the plains where wood was scarce. Notice how the horses standing on level ground are high above the man in the dugout entryway.

19. **Dugout:** This dugout is built into a steep hillside, and has a sod roof. Dugouts were economical, using far less materials than a full-fledged cabin or house.

20. **Tar-paper Shack:** During the homestead era, people streamed into Montana on the railroads. To claim a homestead, it was required that a person build a house measuring at least 8' x 12'.

21. **Building materials:** With lumber, windows, nails, tar paper, a wood stove, and some sweat and toil, a person could build themselves a little house in short order. Materials for building simple houses were shipped by rail — these supplies arrived on the 2nd day for a homesteader building a new life near the Canadian border.

22. **Schoolhouse:** These young homesteaders stand with their teacher Alta Deem in front of their first Montana schoolhouse, Alta's homestead shack.

23. **Log house:** As time went by, builders had better materials and spent more time crafting buildings that would last for decades.

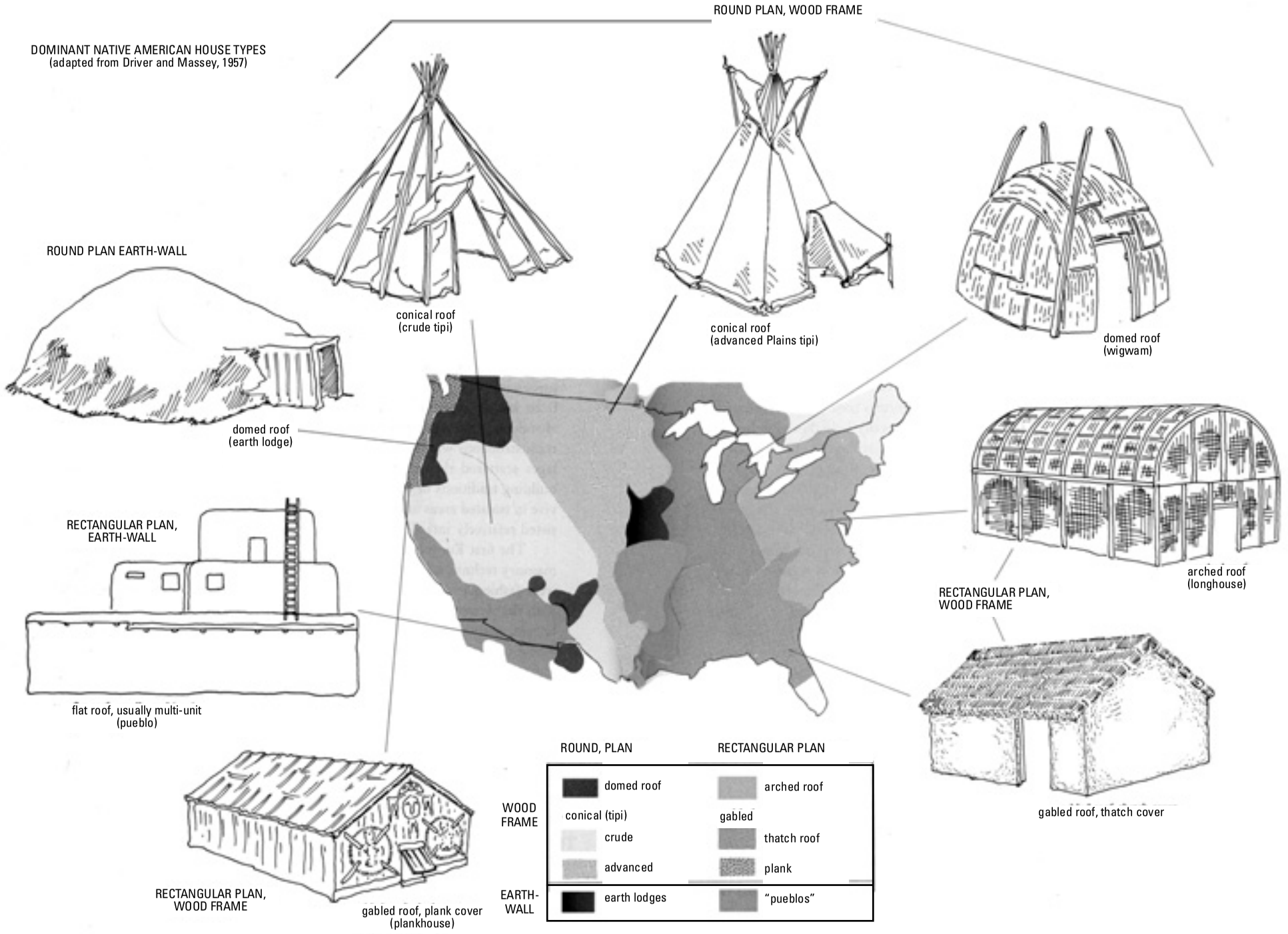
24. **Log House,** Nevada City

25. **Log House,** Finney Homestead

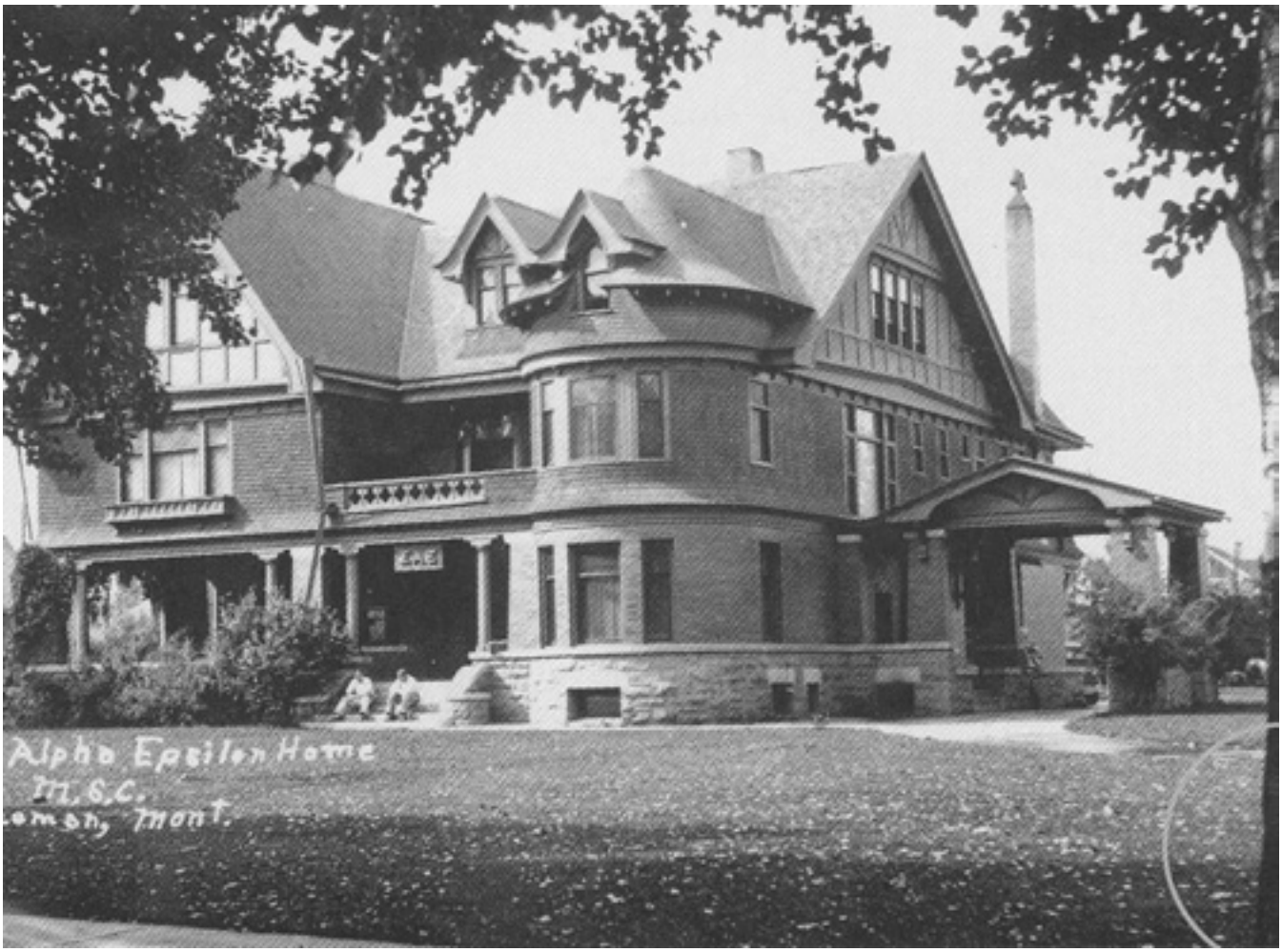
26. **Ranch house:** Families settled into communities and built with pride and a determination to remain for generations.

27. **Schoolhouse:** The end.

Native American House Types



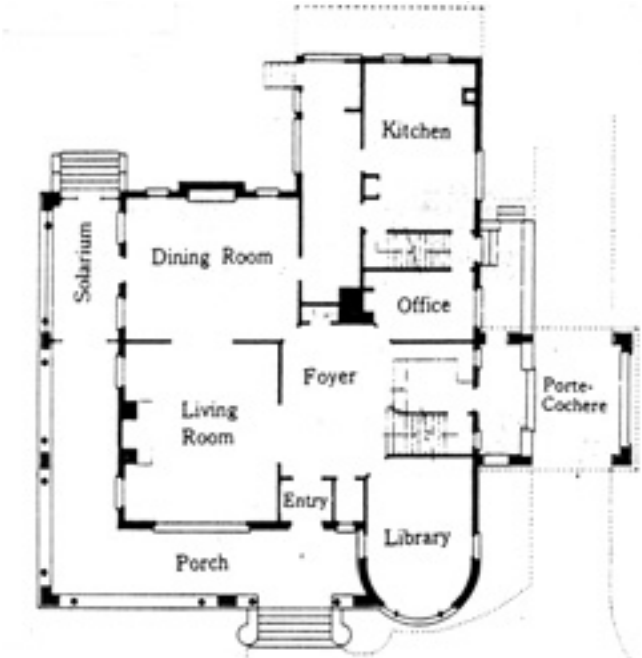
Story Mansion



(continued)

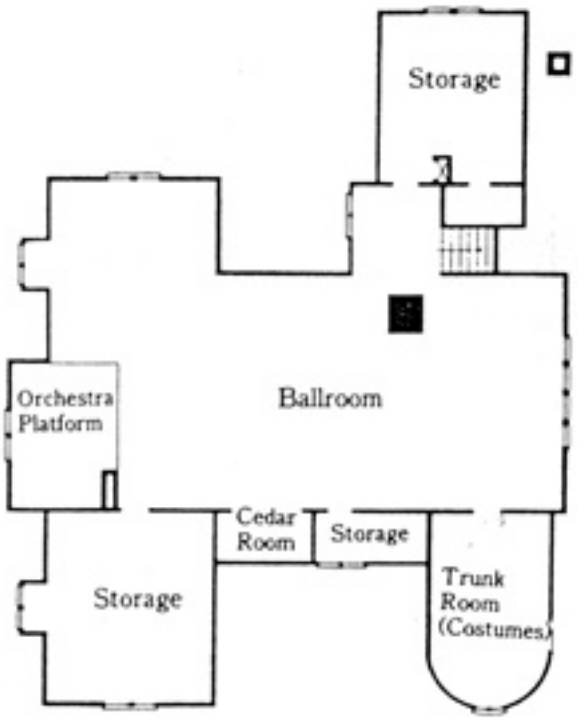
Story Mansion *(continued)*

Story Mansion Floor Plan

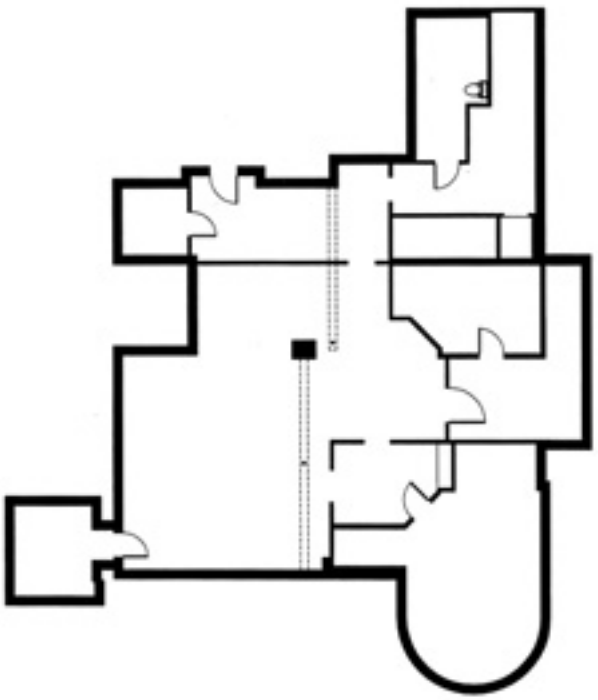


First Floor

Second Floor



Third Floor



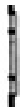
Basement

(continued)

Story Mansion *(continued)*

A floorplan is a map of a building that shows how the rooms lay out and where everything is placed: floors, walls, doorways, windows, sinks, sometimes even furniture. Look at the key to this floorplan and find the various elements depicted.


Wall


Window


Stairway


Bathtub


Sink


Toilet


Chimney

Lesson 2: Rural Buildings

Objectives

At the conclusion of the lesson students will be able to:

- Name and identify rural structures: barn, granary, grain elevator, spring house, ice house, outbuilding
- Draw a site plan for a farmstead

Time

45 minutes

Materials

- Footlocker Materials: SHPO Posters
- User Guide Materials: Master—"Barn types in MT;" Master—"Field Guide to Montana's Rural Buildings;" Article—"Building on Faith"
- Teacher Provided Materials: Photocopies of the "Barn Types in MT" and "Field Guide to Montana's Rural Buildings" masters

Pre-Lesson Preparation

The landscape of Montana wears many faces. For generations, the people living within this landscape have gleaned their living from the riches that the earth had to offer – hunting, gathering, farming, ranching, logging, mining. In the places where people have lived close to nature and made their living directly from the land, there is a ruggedness to the architecture that reflects the work that people did. The buildings were built for heavy use, holding livestock, housing big equipment, containing heavy loads. Over time, people figured out many efficient ways to build and they shared those ideas with others. This led to many traditional buildings looking very similar.

For instance, barns were built to shelter livestock, and provide a place for calving, shearing and storing animal feed. Animal stalls were designed at ground level, with access for cleaning and feeding. Timbers were stout and strong to contain the animals. And the posts and supports were hefty, to hold the weight of hay and grain storage. Lofts were commonly added upstairs for the feed storage, high and dry. High to keep feed off the ground and away from hungry animals. Dry to keep hay from getting damp and moldy, or damp and heating up, a very real fire hazard. Barn height and roofs evolved from gable to monitor to gambrel to round arch over time – each increasing the size of the loft.

Procedure

1. Review the "Field Guide to Montana's Rural Buildings" handout with the class.
2. Display Heritage Barns and Guardians of the Grain posters.
3. As a class or in groups, have students make a compendium of the many rural buildings that they have visited or know about.
4. Draw a site map of a fictitious farmstead. See discussion questions for planning assistance.

(continued)

Discussion questions

1. What are the functions of the buildings present?
2. Why might buildings might be placed in certain ways (ie. relationships to each other; their orientation to weather and direction, where the traffic patterns are placed)
3. What is the traffic pattern between buildings?
4. What other elements are part of the plan? (ie. corrals, fences, driveways, gates)
5. Compare and contrast students' farmstead plans.

Further Explorations:

- Visit! two historic farms with lots of outbuildings in your vicinity. Have a family member tell the history of the farms and the kind of farming they did over time. Observe where the buildings were placed, their orientation to weather and direction, note the functions, follow the patterns and compare the similarities and differences.

When the class returns to school, read:

The People, Yes, Verse 5 —
by Carl Sandburg

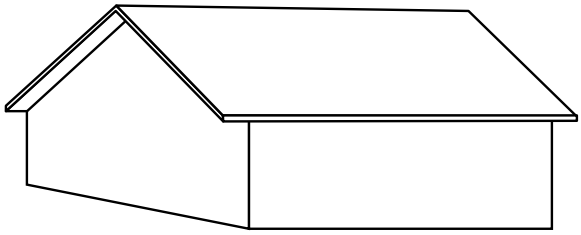
For sixty years the pine lumber barn had held cows, horses, hay, harness, tools, junk amid the prairie wind of Knox County, Illinois and the corn crops came and went, plows and wagons, and hands milked, hands husked and harnessed and held the leather reins of horse teams in the dust and dog days, in the late fall sleet till the work was done that fall.

And the barn was a witness, stood and saw it all.

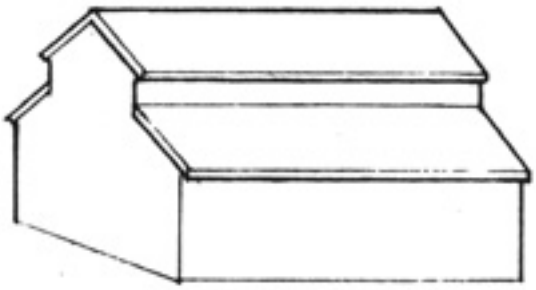
"That old barn on your place, Charlie, was nearly falling down last time I saw it, how is it now?"
"I got some poles to hold it on the east side and the wind holds it up on the west."

Have the students write a poem about the farms they visited.

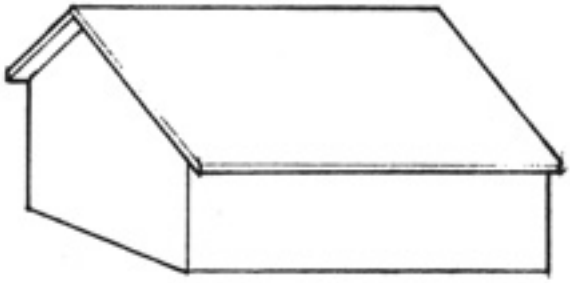
Barn Types in Montana



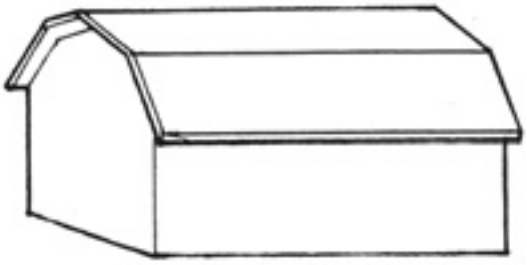
Gable Roof



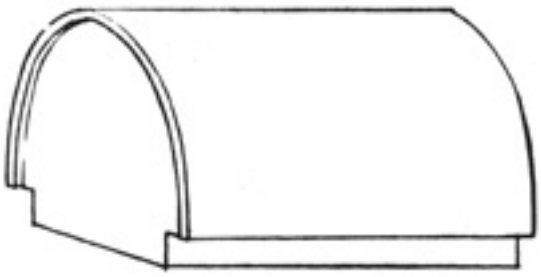
Monitor Roof



Saltbox



Gambrel Roof



Round Roof

Master: Field Guide to Montana's Rural Buildings

ROOT CELLAR

"Hominy" Thompson in the door of the root cellar he built in Sheridan County.

Library of Congress Photograph Collection

Before the days of electricity and freezers, root cellars were built to store food harvested in the fall. The storage room was dug into a hillside, and the walls were built of stone. The earth kept things between 40 and 60 degrees year-round. The room was lined with shelves and filled with canned fruits, pickles and jams, along with bushels of potatoes, apples, fruits and vegetables and dried meats and cheese – enough to feed the family through the long cold winter and spring.

GRAIN ELEVATORS

Havre, Montana.

Marion PostWolcott, photographer.

Library of Congress Photograph Collection

These monuments on the landscape stand tall against the Big Sky. Years ago, most Montana towns had at least one grain elevator where farmers sold their wheat and grains. The elevator companies stored the grains in these giant buildings and then shipped them out to other parts of the country by train.

GRANARY

Grant-Kohrs Ranch, Deer Lodge, MT

Library of Congress: Historic American Buildings Survey

Most farms and ranches had a granary where they could store grain to feed their livestock. These structures were usually built inside out! The wooden framing for the walls was on the outside and the interior walls were lined with smooth boards so the grain would not get hung up in hard to reach corners.

(continued)

BARN

C-D ranch, Big Hole Valley

Russell Lee, photographer.

Library of Congress Photograph Collection

The barn was the work center of a farm or ranch. Built to provide shelter and storage, the barn housed the livestock, and provided a place for milking, calving, shearing and stabling. Most barns had a hayloft stocked with animal feed, and room for storing farm equipment.

ICE HOUSE

Grant-Kohrs Ranch, Deer Lodge, MT

Library of Congress: Historic American Buildings Survey

Before the days of electricity and refrigerators, ice-boxes were used to keep food cold. A block of ice was placed in the top of the icebox, and the food was kept in a cupboard below. Each winter, ice cutters went out on frozen lakes and rivers to cut blocks of ice for iceboxes. People stacked the ice blocks in special icehouses and packed it with saw-dust for insulation. The houses were so tightly built that the ice would stay cold and last all year.

CHICKEN HOUSE

Grant-Kohrs Ranch, Deer Lodge, MT

Library of Congress: Historic American Buildings Survey

Home to the chickens, the chicken house usually had windows that faced to the south to let the sun warm the interior of the building. They were fenced to keep the chickens in and foxes, dogs and others out.

Building on Faith: Historic Barns

By Chere Jiusto

In 1993, I was in Washington, DC and, it so happened, landed there just in time for the opening of the American Building Museum. I visited the museum and the inaugural exhibit, *Barn Again!* There, inside the great hall of the building museum, stood a full-sized historic barn. The barn had been moved and rebuilt onsite, with an old-time barn raising, country fiddle music and lots of genuine elbow grease.

No longer moored to its barnyard and surrounded by pens and corrals, it looked a bit like a ship out of water. Something about a barn standing indoors is unnatural, a person misses the smell of animals and hay, and a scruffy old barn cat or two. But the barn stood proud, a testament to the knowing hands that had first cut and fitted its timbers. Its walls bore the marks of many honest years of use, and etched out tales of calving on cold winter nights, milking with the rising sun and the generations of family who had built their livelihood under this very roof.

The exhibit was wildly popular. And in the years since, the traveling version has been touring our country non-stop, taking this celebration of rural life to the heartland of America. The images strike a deep chord: neighbors shouldering timbers and tall walls up into place... a shadowed figure walking the ridgepole on the skeleton of a new barn… stalwart red walls against rolling golden fields… soft dappled light filtering into a silent haymow.

Detail from the Thin Blue Line

For generations, barns were built by age-old tradition, with skills and methods of construction handed down from father to son. Barn building was high craft, requiring individual training and know-how, and the help of friends and neighbors when the time came to raise high the roof beam. In areas undergoing

Dryland Farm 1995, Niarada (Hotsprings)

settlement, a barn was often the biggest up-front investment that new settlers would make. The house came first, usually modest and somewhat temporary. Next came the barn, and here greater investment and faith were required, since this was a building to serve for years to come, to help newly landed farmers reach for their dreams. Barns pulsed with the heartbeat of the farm, and were a hallmark of emergent industry and prosperity.

Across our state, the intermingling of people of many nations led to a variety of barn building traditions. English style barns, derived from Colonial times in America, were among Montana's earliest buildings. Dogtrot barns trace a Southern lineage, their long profiles housing a crib in each end and an open floor at the center. Finnish log barns, masterfully hewn and tightly notched, belie the Scandinavian origins of many Montana homesteads. In the Gallatin Valley, gambrel-roofed barns in the communities of Amsterdam and Manhattan tie the farmsteads to their Dutch ancestors in the Old World. French pièce-sur-pièce construction crops up in remote corners of Montana's eastern prairie counties. And in Lewistown and Helena, Croatian masons carefully cut and stacked stone walls on barns that could stand for centuries.

As agriculture moved into the 20th century, barn building increasingly took on scientific ideals. Folk building methods moved over to make way for standardized plans that incorporated new technologies and experimental research. Milled lumber, manufactured windows, concrete flooring, systematic

written plans—all changed the way that barns were designed and the way they were used.

Farmer's bulletins became widely available with plans for dairy, horse, sheep and beef cattle barns, along with other buildings suited to rural life, including "modern" farmhouses and even doghouses. Radford's *Barn Book*, "being a complete collection of practical, economical and common sense plans" for the industrious farmer of 1908, expressed the wisdom of the day:

> "*Man the king of all, merely follows the law of all creation in fashioning for himself beautiful habitations, and he goes a step further even in building beautiful structures for the housing of the horses, the cattle, the sheep and the other animals that are dependent upon his care and his bounty.*"

There is a ruggedness and a weathered beauty about old barns that invites our affection. It is an unassuming elegance that stems from the wisdom and economy of their purposeful design. Shaped by agrarian pragmatism, form followed function down through the centuries. Iron hasps forged by a heavy hand, native rock cut with generosity, hefty wooden planks sliced overly thick—these are some of the ingredients that render a barn sturdy enough to last and worthy of a long heritage.

Beyond the physical, barns are a tangible link to our rural ancestors, and to times past when so many more of us were farm people. Our society took flight on the wings of agrarianism; the democratic notion that the citizen farmer might earn the right to own his own property, have a voice in government and exercise some control over his destiny, stands as a parable in the creation of this nation.

As our most tangible rural symbol, barns resonate with the power of this allegory and remain indelibly imprinted on our American psyche. They lie within our everyday field of view, reminding us of our collective heritage and the best parts of ourselves. Who are we if we do not still believe like renegade patriots in the right to a free and just society? What does our future hold if we do not at times come together to build something big, something beautiful, something that will carry our traditions on to our children's children?

Oscar's Barn, 1994, Augusta

Raising a barn was once a community event, made possible by many hands. Eighty or a hundred years later, preserving a barn can be almost as challenging. Like grain elevators and beaverslides, barns give definition to Montana's Big Sky landscape. Will the Doncaster Round Barn at Twin Bridges, the Litening Barn near Townsend, the Adams Stone Barn near Great Falls always be there? During 2003, as *Barn Again!* tours Montana, we have the chance to celebrate the heritage, ask that question and help to frame an answer.

The Adams Barn, Sun River, 1996

Chere Jiusto is the executive director of the Montana Preservation Alliance, a state-wide non-profit organization dedicated to preserving Montana's historic places, buildings and cultural heritage. She is currently an MCH research fellow, studying and documenting the Historic Barns of Montana. To share barn histories or to support MPA programs serving Montana's rural communities, contact her at 516 N. Park Street, Suite A, Helena, MT 59601 (406) 457-2822.

The artist Barbara Coppock

Barbara Coppock, of Lakeside, Montana, taught herself the art of etching, after many years as a wife and mother on an orchard in Washington. When her husband, Bill, had a car accident that left him paralyzed, Barbara went back to one of her earliest passions, art, in order to make a living. In 1993 they moved to Lakeside full time, where they still keep a small orchard. She sells her work in galleries throughout the northwest.

Lesson 3: Community Geography

Objectives

At the conclusion of the lesson students will be able to:

- Define and contrast the geometric shapes circle, cone & square
- Identify a 90 angle.
- Recognize the compass rose on a map and the cardinal directions: north, south, east, west
- Read and interpret a historical map
- Discuss the early settlement patterns in your community
- Define Community, Settlement, Encampment

Time

One 45-minute period, and one 30-minute period

Materials

- Footlocker Materials: Photographs
- User Guide Materials: Masters—"The Aliens Have Landed"; first-person descriptions of early Montana settlements
- Teacher Provided Materials: Photocopies of "The Aliens Have Landed" master; Maps of your town, early description of your town

Pre-Lesson Preparation

Communities are a fabric of people and place woven together. In places where people stayed in one place throughout the year, permanent settlements were born. Each is unique in part because of the location and the activities that brought people together in that setting. Communities need certain things to sustain their residents — available food, proximity to water, and resources to give people a livelihood. In addition, materials to build with, had to be transported to and from the settlement. In any community, there are clues to the reasons that people were drawn there, and why they settled down.

Settlements were ordered by similar buildings, common traffic patterns, prominent buildings, specialized commercial and residential areas. The square is the common unit in the design and building of our towns today. Square streets, blocks, buildings and alleys all work on the principle of the 90 angle and its variations, and many follow towns were laid out following a north-south grid pattern.

In the Rocky Mountains and the High Plains, most Native Americans did not create year-round settlements, but did have regular encampments that they returned to seasonally and annually. Such places as the Camas Prairie in the Bitterroot, where camas roots and other foods were collected for the year, the high plains surrounding the Sweetgrass Hills where the great northern buffalo herd was hunted, the valley around the Lodge of the White Deer where tribal people gathered annually, the great springs along the Missouri River, all were the home ground to Native Americans in the region that later became Montana.

The encampments had an architectural patterning that was both practical and aesthetic. The geometric unit of design was the circle, and all things flowed from this shape. The lodges that gave shelter, the circle around

(continued)

which the camp was arranged, the fire rings and the sweat lodges – all had a circular footprint as the basic framework.

Pull together maps, modern and historic of your town. (ie. historical maps, birdseye views, Chamber of Commerce maps.) Is there an early description of your community that you can obtain? Historic Sanborn maps are also available on-line for many Montana towns. (See p. 48 for information on how to access the Sanborn maps.)

Procedure: Part 1, Geography

1. Discuss patterns of community geography with your students. Draw circular and square plans on the board.
2. Examine the photographs of early Montana settlements and read first accounts of the early communities of Bannack, Virginia City and Helena with your students.
3. Study the maps of your town. Teach your students map-reading skills by finding the map legend and identifying the scale, map symbols, the compass rose, and each of the cardinal directions – north, south, east and west. Compare historical maps of your town to modern ones and see where the town began and how it grew.
4. Look back at the story of your community. Through class discussion, trace the history and identify the factors that invited people into this place early on. Why did people come here? Why did they build where they did?

Procedure: Part 2, Chronicle Your World

1. A Radiant Map of Your World: Have students map their world, the place they inhabit on a daily basis. Show the buildings, the routes they follow, the important landmarks in their lives.

OR

2. *The aliens have landed! And you are one of them!!* It is your job to record your impressions of the human beings that live in your part of the earth. Send a dispatch back to your mother ship describing what you see here, how these humans live and the things they build for their societies.
3. Share with the class.

Discussion Questions

1. When was your community settled? What drew people together there?
2. What do the early maps tell you about the place where you live?
3. What do they show about how it changed over time?
4. What are the features that are central to the design of your town? How did the town take form around them?

Further Explorations:

- Take a field trip to the center of your town. Look at the evidence in the streetscape and on the skyline that gives clues about the earliest enterprises of this place. What has changed? What has remained the same over time?

The aliens have landed! And you are one of them!!

It is your job to record your impressions of the human beings that live in your part of Earth. Send a dispatch back to your mother ship describing what you see here, how these humans live and the things they build for their societies.

Digital Sanborn Maps™, 1867-1970

Founded in 1867 by D. A. Sanborn, the Sanborn Map Company was the primary American publisher of fire insurance maps for over 100 years, repeatedly mapping towns and cities as they changed. The maps provide a wealth of information, such as building outline, size and shape, construction materials, height, building use, windows and doors, street and sidewalk widths, boundaries, house numbers, and more. The plans often include information and shading for steel beams or reinforced walls, plus symbols for stables, garages, warehouses, etc.

Factories are labeled with the owner's name, as well as the products manufactured there. In large industrial and commercial buildings, even individual rooms and their uses are recorded. Also depicted are pipelines, railroads, wells, water mains, dumps, and heavy machinery likely to affect the property's vulnerability to earthquake, fire, and flood. Along with other references—city directories, photographs, small-scale maps, census records, genealogies, and statistical data—Sanborn maps provide an unparalleled picture of life in American towns and cities.

Accessing Digital Sanborn Maps

No maps are consulted more in academic and public libraries than Sanborn® fire insurance maps—the detailed property and land-use records that depict the grid of everyday life in more than 12,000 U.S. towns and cities across a century of change. The original Chadwyck-Healey™ Sanborn Fire Insurance Maps collection on microfilm has long been one of the few comprehensive sets for the entire U.S., with some 660,000 maps. Bell and Howell/ProQuest enhanced and digitized the same maps for inclusion in the Digital Sanborn Maps collection.

The electronic interface makes it easy to find the locations you want. Initially accessible by state and community, the maps also pinpoint the streets, landmarks, and other places noted in the map's index. Once displayed, the maps can be manipulated, expanded, printed, and downloaded.

Montana Sanborn Maps

More than 210 towns and cities in Montana were mapped by the Sanborn Map Company between 1884 and 1970. The Internet electronic version of these Sanborn Maps is now available online to all Montanans. This project was organized and funded by the Missoula Historic Preservation Office, along with Historic Preservation Offices in Miles City, Bozeman, Butte Silver Bow, Great Falls, the Montana Historical Society, Montana State Historic Preservation Office, University of Montana, James McDonald, and Page Goode.

Through this site, you can:

- Browse maps in Montana by city, and date.
- View, download, and print the digital image of every map.
- Navigate of the maps with a thumbnail-image view.
- View images without downloading a plug-in viewer.

The site can be accessed using the following information:

http://sanborn.umi.com/
Account Name = bitterroot
Password = welcome1&

(continued)

Montana Sanborn Maps®

(MICROFILM)

Absarokee: 1927, 1927* Anaconda: 1884, 1888, 1800(?),1891, 1896, 1903, 1951 Antelope: 1914, 1920, 1929, 1929* Augusta: 1929, 1929* Bainville: 1910, 1920, 1929, 1929* Baker: 1910, 1914, 1920, 1928, 1928* Ballantine: 1927, 1927* Basin: 1896, 1904, 1912, 1927, 1927* Bear Creek: 1914, 1927 Belfry: 1912, 1927 Belgrade: 1891, 11896, 1902, 1907, 1912, 1941 Belt: 1897, 1900, 1910, 1927 Big Fork: 1916, 1927 Big Sandy: 1920, 1929 Big Timber: 1891, 1893, 1896, 1907, 1921, 1938 Billings: 1884, 1886, 1889, 1891, 1896, 1903, 1903, 1912, 1923, 1949, 1923 republished 1958 Bonner: 1912, 1921, 1932 Boulder: 1892, 1897, 1912, 1927 Boulder Valley: 1888 Bowdoin: 1920, 1920* Bozeman: 1884, 1889, 1890, 1891, 1904, 1912, 1927, 1943 Brady: 1914, 1927 Bridger: 1907, 1916, 1940 Broadview: 1912, 1920, 1927 Browning: 1910, 1916, 1920, 1929, 1936 Buffalo: 1929, 1929* Butte: 1884, 1888, 1890, 1891, 1900, 1916, 1951, 1916 republished 1957 Carlyle: 1928, 1928* Carter: 1920, 1929 Cascade: 1914, 1920, 1920* Castle: 1892 Chester: 1910, 1920, 1920* Chinook: 1892, 1900, 1910, 1928, 1943 Choteau: 1910, 1921, 1943 Clancy: 1927, 1927* Clyde Park: 1912, 1927, 1927* Coalville: 1907 Coffee Creek: 1929, 1929* Columbia Falls: 1894, 1910, 1920, 1932 Columbus: 1897, 1903, 1907, 1912, 1920, 1942 Conrad: 1910, 1920, 1929, 1937 Corvallis: 1909, 1929, 1929* Culbertson: 1910, 1930 Custer: 1927, 1927* Cutbank: 1910, 1920, 1929, 1943 Darby: 1927, 1932 Deer Lodge: 1884, 1888, 1890, 1894, 1908, 1912, 1929, 1938 Denton: 1916, 1929, 1929* Devon: 1914, 1930 Dillon: 1884, 1888, 1890, 1897, 1905, 1912, 1927, 1940 Dixon: 1914, 1927, 1927* Dodson: 1914, 1930 Dooley: 1929, 1929* Drummond: 1909, 1932 Dunkirk: 1920, 1920* Dupuyer: 1914, 1920 Dutton: 1920, 1920* East Helena: 1888, 1930, 1942 Ekalaka: 1914, 1928, 1928* Elkborn: 1892, 1897 Ennis: 1927, 1927* Eureka: 1910, 1932 Fairfield: 1927, 1927* Fairview: 1910, 1914, 1920, 1929, 1929* Fallon: 1916, 1928 Flaxville: 1929, 1929* Forsyth: 1897, 1903, 1910, 1920, 1941 Fort Benton: 1884, 1888, 1902, 1910, 1920, 1939 Froid: 1914, 1920, 1929, 1929* Fromberg: 1907, 1912, 1927, 1927* Galata: 1916, 1930 Gallatin: 1927, 1927* Gardiner: 1907, 1927, 1938 Geraldine: 1916, 1929, 1929* Geyser: 1914, 1929 Gildford: 1914, 1930 Gilman: 1916 Gilt Edge: 1901, 1908, 1913 Glacier Park: 1929, 1929* Glasgow: 1900, 1910, 1920, 1937 Glendale: 1891 Glendive: 1888, 1893, 1903, 1905, 1910, 1929, 1941 Granite: 1889, 1890, 1892 Grassrange: 1916, 1929, 1929* Great Falls: 1888, 1891, 1900, 1929, 1951, 1929 republished 1957 Hall: 1927, 1927* Hamilton: 1893, 1896, 1909, 1914, 1944 Hardin: 1910, 1914, 1920, 1927 Harlem: 1910, 1912, 1920, 1930 Harlowton: 1910, 1921, 1943 Harrison: 1927, 1927* Havre: 1892, 1894, 1900, 1903, 1910, 1920, 1943 Hedgesville: 1914, 1929 Helena: 1884, 1888, 1890, 1892, 1930, 1951, 1958 Helmville: 1914, 1927 Highwood: 1916, 1927 Hilger: 1916, 1929 Hingham: 1914, 1920, 1930 Hinsdale: 1914, 1920, 1930 Hobson: 1916, 1929 Huntley: 1910, 1927, 1927* Hysham: 1920, 1927 Ingomar: 1920, 1923, 1929 Inverness: 1920, 1930 Ismay: 1910, 1914, 1928 Joliet: 1907, 1912, 1927, 1927* Joplin: 1914, 1920, 1930 Judith Gap: 1910, 1929 Kalispell: 1892, 1894, 1899, 1903, 1910, 1927, 1950 Kendall: 1902, 1905, 1908 Kremlin: 1920, 1930 Lambert: 1929, 1929* Laurel: 1912, 1920, 1944 Lavina: 1929 Lewistown: 1894, 1901, 1908, 1913, 1916, 1922, 1943 Libby: 1898, 1910, 1916, 1927, 1942 Lima: 1909, 1921, 1931 Livingston: 1884, 1889, 1891, 1896, 1907, 1921, 1927, 1929 Logan: 1914, 1927 Lothair: 1920, 1930 Lothrop: 1902 Malta: 1910, 1920, 1930, 1930* Manhattan: 1902, 1907, 1912, 1927, 1927* Martinsdale: 1916, 1929 Marysville: 1888, 1893, 1897, 1914, 1914* Medicine Lake: 1910, 1920, 1929, 1929* Melrose: 1914, 1927 Melstone: 1912, 1920, 1929 Mildred: 1920, 1920* Miles City: 1884, 1886, 1888, 1893, 1904, 1910, 1916, 1928, 1948 Missoula: 1884, 1888, 1890, 1891, 1893, 1902, 1912, 1921, 1951, 1958 Moccasin: 1916, 1929, 1929* Mondak: 1910, 1920 Moore: 1907, 1912, 1929 Musselshell: 1914, 1920, 1920* Nashua: 1920, 1930 Neihart: 1892 Norris: 1927, 1927* Oswego: 1920, 1930 Outlook: 1920, 1929, 1929* Pablo: 1927, 1927 Paradise: 1910, 1927, 1927* Park City: 1912, 1927 Philipsburg: 1889, 1890, 1892, 1894, 1902, 1909, 1932 Plains: 1910, 1927, 1932 Plentywood: 1912, 1920, 1929 Plevna: 1928, 1928* Polson: 1910, 1927, 1944 Pompeys Pillar: 1927, 1927* Poplar: 1914, 1920, 1930 Rapelje: 1927, 1927* Red Lodge: 1891, 1896, 1901, 1907, 1912, 1927, 1940 Redstone: 1920, 1929, 1929* Reed Point: 1923, 1927 Reserve: 1920, 1929 Richey: 1920, 1929, 1929* Ringling: 1921, 1929 Roberts: 1927, 1927* Ronan: 1910, 1914, 1927, 1932 Rosebud: 1928, 1928* Roundup: 1912, 1920, 1944 Roy: 1916, 1929, 1929* Rumsey: 1890, 1892 Ryegate: 1916, 1920, 1919 Saco: 1910, 1920, 1930 Saint Ignatius: 1927, 1932 Saint Regis: 1918, 1927 Saltese: 1914, 1932 Sand Coulee: 1914, 1927 Savage: 1914, 1929, 1929* Scobey: 1920, 1929, 1929* Shelby: 1910, 1927, 1943 Sheridan: 1912, 1921, 1927 Sidney: 1910, 1914, 1917, 1929, 1939 Silver Cliff: 1906 Simms: 1929, 1929* Somers: 1910, 1922, 1927 Stanford: 1910, 1929, 1929* Stevensville: 1893, 1896, 1909, 1927, 1944 Stockett: 1916, 1927 Sun River City: 1884, 1888, 1891 Superior: 1918, 1932 Sweetgrass: 1914, 1920, 1929 Terry: 1910, 1916, 1920, 1928, 1928* Thompson Falls: 1910, 1914, 1927, 1938 Three Forks: 1910, 1914, 1927, 1927* Toston: 1927, 1927* Townsend: 1884, 1886, 1889, 1891, 1896, 1903, 1908, 1922, 1927, 1927* Troy: 1912, 1920, 1927, 1939 Twin Bridges: 1900, 1907, 1921, 1927 Twodot: 1916, 1921 Upper Lake: 1894 Valier: 1910, 1927, 1927* Victor: 1909, 1932 Virginia City: 1884, 1890, 1904, 1907, 1927 Westby: 1929, 1929* White Sulphur Springs: 1884, 1886, 1889, 1891, 1902, 1908, 1929, 1929* Whitefish: 1905, 1910, 1922, 1932 Whitehall: 1897, 1901, 1907, 1927 Whitetail: 1920, 1929, 1929* Wibaux: 1910, 1914, 1928 Wickes: 1888, 1892 Willow Creek: 1927, 1927* Wilsall: 1914, 1921, 1927 Winifred: 1916, 1929, 1929* Winnett: 1922, 1929 Wolf Creek: 1920, 1920* Wolf Point: 1920, 1930 Worden: 1927, 1927*

* = Second copy

(continued)

Partial list of map codes:

This list is neither complete nor applicable in all cases; it serves only as a guide.

A	Automobile (Garage)
B.C.	Brick Chimney
B.& S.	Boots and Shoes
Bl.Sm.	Blacksmith
C.B.	Concrete Block
Chop Ho	Chop House (an eating place)
CLCloth Lined	
Clo	Clothing
D.G.	Dry Goods
D	Dwelling
D.H.	Double Hydrant
Dwg.	Dwelling
F.B.	Female Boarding = Bordello
Furne.	Furniture
G.F.G.	Gentlemen's Fine Goods
Gen'l S.	General Store
Gro.	Grocery
Hdwe	Hardware
Ho.	House, not hotel. (Ware Ho, Out Ho, Hose Ho, Hen Ho, etc.) However, some hotels had "House" as part of their name.
Hyd.	Hydrant
M.E.	Methodist-Episcopal
Mill'y	Millinery
Off.	Office
Out Ho.	Outer Bldg; not a privy
P.O.	Post Office
R.C.	Roman Catholic
S.P.	Stove Pipe
S.	Store; Storage
S.H.	Single Hydrant
Sal.	Saloon
Sta.	Stationery
Stge.	Storage, not stagecoach
T.C.	Terra Cotta Chimney
Vac.	Vacant
W.F.	Wells Fargo
W.Ho.	Ware House

Lesson 4: Made in Montana! Building and Construction

Objectives

At the conclusion of the lesson students will be able to:

- Identify building materials found in Montana's environment
- Discuss some of Montana's more unusual constructions
- Define and discuss the physical properties of cones, lintels, domes, pyramids.

Time

Two 45-minute periods

Materials

- Footlocker Materials: *Andy Goldsworthy, A Collaboration With Nature* book; Slides—*Give Us Shelter*
- Teacher Provided Materials: Slide Projector; Natural materials for building (collected by students during lesson)

Pre-Lesson Preparation

When people build, they are guided by their surroundings and the construction ideas and methods they have learned throughout their lives. In preparation for this lesson, have students collect interesting natural materials.

Procedure: Part 1, Natural Resources

1. Flip back through the Shelter Slides and have students look for various kinds of natural building materials.
2. As a group, list the building materials in the Montana environment (i.e. river cobbles, caves, log, boulders, poles, hides, brush, sod, earth, clay)
3. Share and discuss the native building materials in the footlocker – stone, brick, log, hide and lumber.

Procedure: Part 2, Build From Nature

1. Share and discuss *Andy Goldsworthy, A Collaboration With Nature* book. Have students collect materials from their surrounding environment.
2. Build a model of a structure using their collected materials.

Discussion Questions

1. How do the buildings and structures in your community reflect the natural materials in the surrounding area?
2. What are some of the design challenges when building with nature's supplies?

Further Exploration

- Design your own playground. Have students list the things commonly found on a playground on the board. Take a vote on the favorite structures in a playground. Have students invent some really fun new playground equipment and design the playground of their dreams. Encourage them to Be Whimsical! Be Outlandish! Incorporate natural materials, unusual building ideas and more!! Have students design the site plan, draw the equipment and present this idea to the class.

Lesson 5: Big Sky, Big Buildings

Objectives

At the conclusion of the lesson students will be able to:

- Name many of the biggest structures ever erected in the state of Montana and locate them on a map.
- Define and discuss basic building elements and forms: cone, pyramid, dome
- Discuss and build a post and lintel structure

Time

One 30-minute and one 60-minute period

Materials

- Footlocker Materials: Slides—*BIG Sky's BIGgest*, PBS Videos—*STONEHENGE, Great Lodges, Building BIG*
- User Guide Materials: Master—"Backbones of Architecture", Script for—"BIG Sky's BIGgest" slides
- Teacher Provided Materials: clay; Newspaper for art project; Montana State Map; Push pins

Pre-Lesson Preparation:

Architecture on a monumental scale is among the most lasting expressions of culture. This lesson is geared toward contemplating the why and how of enormous structures.

Procedure: Part 1, THINKING BIG

1. Together with the class, brainstorm and make a BIG list of BIG things. What are the biggest buildings, biggest sites, biggest structures they can think of anywhere? In Montana?
2. Show *BIG Sky's BIGgest* slides and discuss them.
3. Can your students find the locations of these structures on a Montana map?

Procedure: Part 2, BUILDING BIG

1. Have the class watch the video on *Stonehenge*, one of the world's largest monolithic structures.
2. Go over the "Backbones of Architecture" master. Review the definitions of cones, pyramids, domes and post & lintel construction. Follow the instructions to build your own post & lintel structure.
3. Have students build their own out of clay.
4. Assemble the finished clay pieces in a circle a' la Stonehenge.

Further Exploration

- Newspaper Skyscraper: Have students build the tallest freestanding building they can using only one section of the newspaper, and no other materials.

Slides: Big Sky's BIGgest

1. **Stone Circles:** Stone Circles are common on Montana's high plains, a tie to our rich native history and culture that spanned thousands of years. The biggest stone circle in our region lies just outside of Montana in the Big Horn Mountains. The Big Horn Medicine Wheel is a ceremonial site cherished by many Indian nations in the West.
2. **Stone Circle, Sweetgrass Hills:** The Sweetgrass Hills, near Montana's border with Canada, contain many high sided stone enclosures on tops of West, East and Middle Butte. These small mountains in the prairies of the Hi-Line are sacred to many Native Americans in our region.
3. **Ulm Pishkun Buffalo Jump:** Buffalo jumps were a hunting technique used by groups of native people to harvest buffalo from the numerous herds that roamed the vast Montana landscape. Herds of buffalo were run off a ridge or a cliff, and when they landed below, they were butchered and the meat was dried for the coming winter. The Ulm Pishkun is the largest prehistoric buffalo kill site in the United States.
4. **Drive Lines:** To steer buffalo toward a buffalo jump, long stone alignments were used to mark the route. Some of these stone lines measure over a quarter of a mile in length.
5. **Pompey's Pillar:** One of the largest sandstone buttes along the Yellowstone River, Pompey's Pillar was a visible landmark to anyone traveling the river. Known as the home of the mountain lion, it held a special place to Native Americans.
6. **Pompey's Pillar (detail):** On July 25, 1806 Captain William Clark climbed atop Pompey's Pillar on the return journey from the Pacific Ocean. Clark carved his name into the soft sandstone of the pillar and noted in his journal that "from its top had a most extensive view in every direction on the Northernly Side of the river." Today his carving is the only spot along the entire Lewis and Clark route where one can see physical evidence of their sojourn into the West.
7. **Moncure Tipi:** This wooden building in the shape of a tipi was built in xxxx as a community gathering spot for the Northern Cheyenne people at Busby, Montana. Over its lifetime it was used for tribal dances and get-togethers and in later years was a café. The tipi is three stories high and was listed in the *Guiness Book of Records* as the world's largest tipi.
8. **Copper King Mansion:** This elegant mansion was home to one of Butte's famed copper kings, William Clark. Built in 1888, the house contains a ballroom, a chapel and an 850-pipe organ. It is among the state's grandest and can be toured by the public.
9. **Mines of Butte/Berkley Pit:** At the end of the 19th century, underground miners drilled, blasted and dug hundreds of shafts into Butte Hill, turning it into "The Richest Hill on Earth." The copper mineshafts of Butte were among the deepest in the world, reaching over a mile deep and Butte was the world's leading copper producer from the 1880s until the late 1920s. When the

(continued)

shafts were exhausted, the Anaconda Company dug out the earth remaining between them and created the enormous Berkley Pit, the largest open pit mine in the world.

10. **Anaconda Stack:** Copper from the mines of Butte was shipped by rail to her next door neighbor, Anaconda. Here another Butte copper magnate, Marcus Daly, built an enormous smelter to refine the ore. Although the smelter was demolished, the Anaconda Company Smoke Stack still stands proudly on the hill just outside of the city. It is made of concrete and brick, and at 585 feet high was the tallest freestanding structure in the world when it was completed in 1918.
11. **Margaret Daly Mansion:** Copper King Marcus Daly, rival to William Clark, lived part of his year in Anaconda and part of the year at this house in Hamilton. After his death, his wife Margaret built one of Montana's grandest homes. Now owned by the University of Montana, you can still visit and tour the home today.
12. **Big Mill, Hamilton:** Daly's Big Mill at Hamilton was Montana's biggest sawmill. Built in 1884, it ripped and planed logs from the deep forests of the Bitterroot Valley. The timbers were used to built the deep mineshafts at Butte and to burn in the smelters at Anaconda.
13. **Green Meadow Barn:** The Green Meadow Barn was built to house hereford cattle on one of Montana's early ranches, in the valley just outside of Helena. It was designed by Robert Reamer, a leading American architect who drew plans for the Old Faithful Lodge in Yellowstone Park. The barn was 450 feet long, half the length of a football field. Sadly, it burned down in the 1920s.
14. **Grain Elevators:** Grain elevators were designed for storing wheat and other grains, and are the tallest structures in most farming towns in the state. On the inside, the elevators are divided into separate levels, each containing bins for grain that will be loaded onto railroad cars and shipped out to market.
15. **Cathedral of St. Helena:** The Cathdral of St. Helena is Montana's tallest church, its spires rising to a height of 230 feet. The towering cathedral was designed after a Gothic cathedral in Vienna, Austria and was completed in 1914. It was financed primarily by Thomas Cruse, who made his fortune with the Drumlummon Gold mine in nearby Marysville.
16. **Glacier Hotel:** The Glacier Hotel is one of Glacier Park's many impressive hotels, built for tourists who came out West on the Great Northern Railway. On the inside, the lobby is surrounded by trunks of enormous Douglas Fir trees, that earned it the nickname the "Big Tree Hotel".
17. **Fort Peck Dam:** When the Fort Peck Dam was completed in 1940, it was the largest dam ever built, and was featured on the cover of *Life* magazine. Created to generate hydropower and to control irrigation, the dam took over 7 years to build. When it was done it measured over 21,000 feet long and 250 feet high. It backs up water for 134 miles, forming the 5th largest manmade reservoir in America.

BACKBONES OF ARCHITECTURE: MAKING BUILDINGS STAND UP

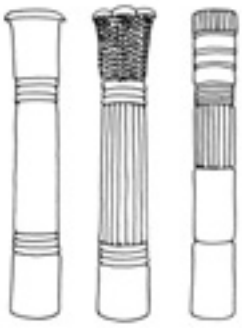
Post & Lintel Structures

An ancient building system for creating a structural framework is called "post and lintel" or "post and beam" construction. Like the architecture of Stonehenge, it consists of using upright supports called posts connected by horizontal beams or lintels across the top. This system forms the basis for much architecture.

It's easy to build your own: Create two posts out of clay and decorate them. Add a flat lintel across the top. Voile – a post & lintel structure. Make more than one and arrange them in your own way.

Posts, Pillars and Columns

From log posts to carved stone columns that trace their styles back to antiquity, uprights are both functional and decorative in our architecture. The classical column styles below were borrowed from Old World structures by builders and designers of American architecture, and are found on buildings throughout Montana.



Egyptian

Roman Tuscan

Greek Doric

Greek Ionic

Greek Corinthian

Cones, pyramids and domes

are all geometric forms that cover and enclose space. They can stand alone as buildings or be used atop a structural framework to form a roof. From tipis of the Piegan to the Egyptian pyramids of Giza to the state capitol dome, these forms are part of everyday life in Montana and the world.

Cones

Pyramids

Domes

Lesson 6: Enriching Our Lives: Style and Design

Objectives

At the conclusion of the lesson students will be able to:

- Define the terms architecture, style and design.
- Recognize certain architectural features.

Time

One 60-minute period, one 45-minute period

Materials

- Footlocker Materials: Slides—"Architecture: It's All Around You;" *A Field Guide to American Houses* book; *Identifying American Architecture* book
- User Guide Materials: Master—"Architectural Style Guide;" Master—"Building Parts;" Master—"Architectural Hats"
- Teacher Provided Materials: Slide Projector; disposable cameras, cardboard and art supplies

Pre-Lesson Preparation:

It is a human urge not only to build but to create beauty. Architecture is the combination of both. Design to meet a need, function to suit and style as an expression of human creativity. Through history, people in societies have developed ways of building that incorporate their sense of aesthetics. The things we construct have a style and quality that reflect the places we live, the materials and tools we have to build with and the know-how for building that has evolved with time. Styles of architecture emerge when construction ideas are shared and repeated, to become a widespread way of building.

Procedure: Part 1

1. Silent Activity: To encourage students to use their own powers of observation, this introduction is conducted in complete silence. Project the "Architecture: It's All Around You" slides in a silent room, no discussion allowed.
2. Silently divide class into teams and send each group outside with an adult leader.
3. Once outside the school, give each team a disposable camera and explain that they are on an architectural scavenging quest, to discover things that capture the spirit and special qualities of their community like those seen in the slides.
4. Have photos printed at a quick photo shop.

Procedure: Part 2, at least one day later

1. Discuss the scavenger hunt of the day before.
2. Go over the "Architectural Style Guide."
3. Go over the "Building Parts" master.
4. Have class mount their photos as an exhibition of the architecture that's all around them.

(continued)

Discussion Questions

1. How many of the building parts do you remember from the scavenger hunt? Did you take pictures of any of those building parts?
2. How do building parts add up to style?
3. What do the pictures say about us, about you?
4. How do we all contribute to the physical qualities – the aesthetics and design of our community?

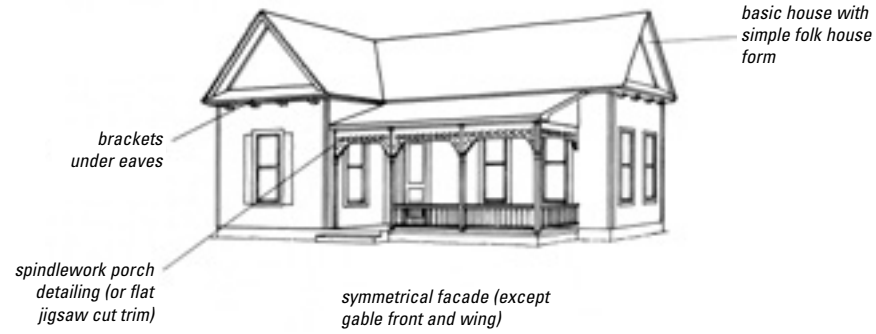
Further Exploration

- Architectural Hats project: Think about the images of building parts that you viewed and photographed. Find a building part in your landscape that is artistic and create a hat following that design. Stage a parade of buildings, or choreograph a procession of buildings. Line up along a sidewalk and make your own living! historic district

A Guide to Styles of American Architecture Common in Montana

Octagon—Late 1800s

Second Empire—1865-1885



Folk Victorian—1870-1910

(continued)

Queen Anne—1889-1910

facade usually asymmetrical

Romanesque—1880-1900

asymmetrical facade

Shingle—1880-1900

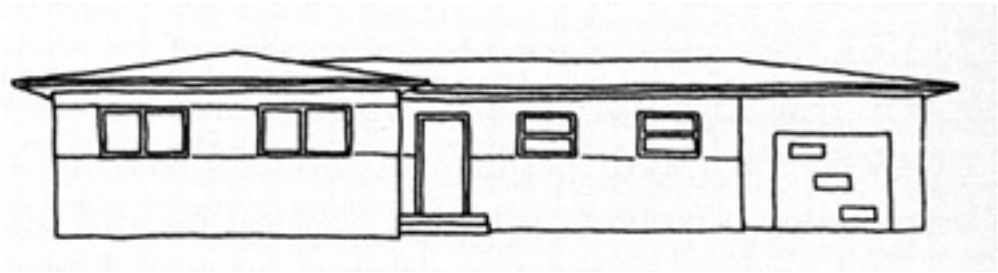
(continued)

Tudor—1890-1940

Craftsman—1905-1930

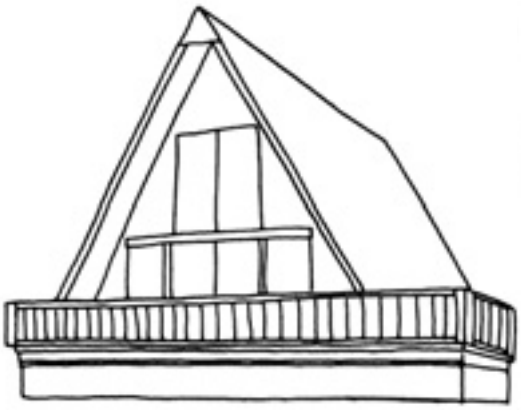
Prairie—1900-1930

(continued)

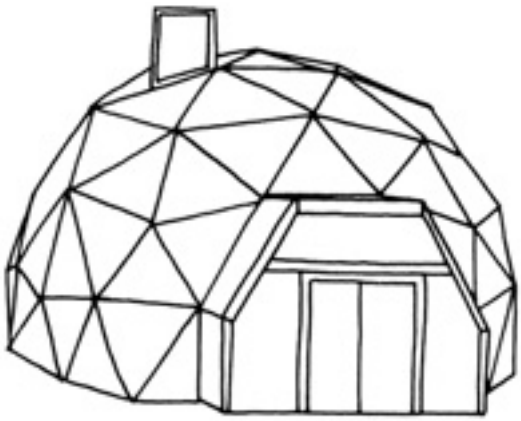


Ranch—1940-1970

Split-Level—1960-1980



A-Frame—1970-1990



Geodesic Dome—1965-1990

Mobile Homes—1950-present

Lesson 7: Preserving Montana

Objectives

At the conclusion of the lesson students will be able to:

- Define and discuss the concept of preservation
- Discuss ways that historic sites and buildings can be reused

Time

45 minutes

Materials

- Footlocker Materials: Slides—"Preserved in Montana;" Poster—"Montana Capitol: A Gift to Montana;" Poster—*National Trust Preservation Week*; Montana's Most Endangered Cards
- User Guide Materials: Script for "Preserved in Montana" slides
- Teacher Provided Materials: Slide Projector

Pre-Lesson Preparation

Throughout these units we have been on a journey about origins. We have retraced the steps of those who have gone before us, seeking to understand a bit about how they lived and how they saw their world. There is heritage in the architecture that is all around us, that connects us to the people in our past. Today, all across our state, we have the chance to save places from our past that are important to us. Historic preservation is recycling on a grand scale, and it preserves a legacy for future generations. Some fabulous period buildings and heritage sites in Montana are open to the public today because people helped to save them. The Montana Sate Capitol Building and Virginia City were rescued by all the people of Montana joining together to protect their history.

Procedure

1. Have students help read aloud the National Trust Preservation Week Poster.
2. Project the "Preserved in Montana" slides of sites and buildings that have been saved.
3. With the slides, discuss some of the following unusual ways historic buildings have been reborn.
4. Share Montana's Most Endangered Places cards with students. Have your students create their own endangered list for your community.
5. Have students choose an endangerd property and plan a new use with drawings, floor plans or models to illustrate.

Discussion Questions

1. Why do historic sites and buildings become endangered?
2. Why are these historic places important to us?
3. What can be done to help preserve an important place?
4. Who helps make preservation happen?
5. What places have been preserved in your community?

(continued)

Further Explorations

- Children have a stake in the future and what it will hold for them. In many places, young people have gotten involved with efforts to research, preserve and interpret historical places. School children from across the state saved up their pennies and donated thousands of dollars to the restoration of the MT Capitol. In Chester, Montana, high school students researched and nominated two of the town's most important historic buildings – the bank and a church – to the National Register of Historic Places. Helena High School students worked with the U.S. Forest Service in 1999 to nominate the Charter Oak Mine to the National Register and filmed a video to interpret its history.
- **Tour!** the heart of your community with your students. Tour with a member of your local historical society or museum, or a lifelong resident who knows the history of the area. Create notes on the history of the various places and have them devise their own tour to lead. Partner with another class, family members or visitors to interpret the events and places in your community that are special and important to preserve for future.
- **Visit!** one or more of the important historic buildings in your community that have been preserved. Invite someone involved to share that success story with the class.
- **Adopt!** a site or building from your endangered list and plan a new life for it: Record the history — who built and used it, when and how? Note its physical attributes.

Slides: Preserved in Montana

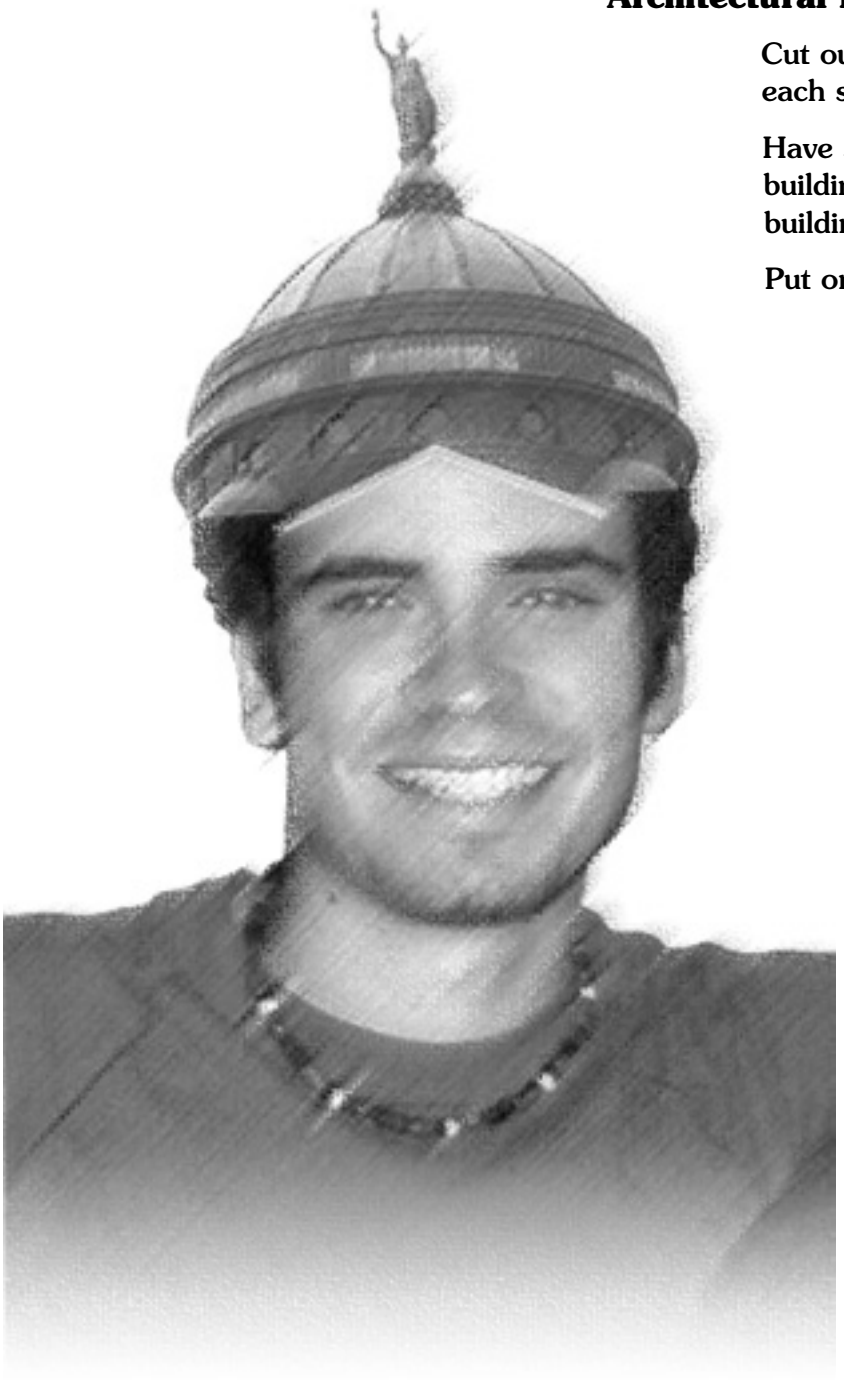
1. **Electric Block:** Montanans care about their history and they work hard to save the places that are near and dear to us all. However in the past, that has not always been the case. During the late 1960s and early 1970s, a program called Urban Renewal caused hundreds of buildings around our state to be demolished. In Helena alone, more than 250 buildings in the downtown gulch were torn down. This is the Electric Block that once stood in downtown Helena.
2. **Electric Block:** It was demolished in 1970 . . .
3. . . . and a parking garage now stands on the site.
4. **Gallatin Gateway:** But valiant efforts have been made to preserve other landmarks and important historic buildings. The Gallatin Gateway Hotel is an old hotel built for guests who came out west on the railroad headed to Yellowstone Park. Travelers would disembark at Gallatin Gateway (the Gateway to the Yellowstone) and stay overnight at the hotel. Then they would catch a motor coach to the park to see its many splendors.
5. **Gallatin Gateway:** The Gallatin Gateway had fallen into disrepair and was headed for a bad end when a family bought it and lovingly fixed it all up.
6. **Gallatin Gateway dining room:** Today, it is again one of Montana's most elegant . . .
7. **Gallatin Gateway lobby:** . . . and memorable hotels.
8. **Geraldine Depot:** Another building that had suffered over time was the Geraldine Depot. The depot closed down when the Milwaukee Railroad shut down in the 1980s.
9. **Geraldine Depot:** Local residents rallied to save the depot, and had it donated to them for a museum.
10. **Geraldine Depot:** They painted the depot its historic colors . . .
11. **Geraldine Depot:** . . . and today, one can again step back into the past when visiting the depot.
12. **NPRR Depot, Billings:** The Northern Pacific Railroad Depot at Billings is another depot that was saved by local people who rolled up their sleeves and help preserve it. Once rundown and abandoned, . . .
13. **NPRR Depot, Billings:** . . . it is now the center of a lively downtown district, with restaurants and rooms for special events that are the pride of the city.
14. **Conrad Mansion:** The Conrad Mansion in Kalispell is one of the state's most impressive old mansions. Built in 1895, it housed the Conrad family, whose fortunes were made in lumber and mining. The mansion was vacant and boarded up when it was transferred to the City.
15. **Conrad Mansion:** Today it is a museum and a wonderful local attraction for visitors. Tours and handmade craft bazaars are among the favorite events now held at the mansion.
16. **Moss Mansion:** The Moss Mansion is a monument to the success of prominent Billings resident, P. D. Moss. The mansion was deeded to the State of Montana.

(continued)

Slides: Preserved in Montana W/ narrative *(continued)*

17. **Moss Mansion:** In years since, it been carefully restored, its stonework repaired, and interior refurnished to its original splendor.
18. **Moss Mansion:** Today it is one of Montana's finest historic house museums, open to the public throughout the year.
19. **St. Joseph's Catholic Church:** St. Joseph's Catholic Church was uprooted and moved when its original site near the Missouri River was flooded to create the Canyon Ferry Reservoir back in the 1940s. It was restored and moved to high ground in 1998.
20. **Reeder's Alley:** Reeder's Alley was a row of single room cabins and lodgings for single working men, built between 1877-1884. They were built by one man, Louis Reeder, a carpenter from Pennsylvania who moved to Montana during the gold rush days. By the late 1960s, Reeder's Alley was run down and up for Urban Renewal. A group of Helena women banded together to save Reeder's Alley from the wrecking ball and restore it – today it is a Helena attraction and houses small shops and a restaurant.
21. **Miles City Waterworks:** The water works of Miles City once collected and supplied water to the young city. When new water treatment and pumping facilities were built, the water works became obsolete. With its cylindrical rooms that once held water, today it is the state's most unique gallery and proudly displays the artwork and exhibits for Custer County.
22. **Virginia City:** Virginia City has been praised as the best preserved gold mining ghost town in the West. With its false-front buildings and wooden boardwalks, it offers a glimpse of America's past to thousands of yearly visitors. In 1995, the State of Montana purchased almost 250 buildings at Virginia City from the Bovey Estate, saving it from being sold off and guaranteeing that it would be preserved for future generations to enjoy.

Make Your Own Architectural Hat



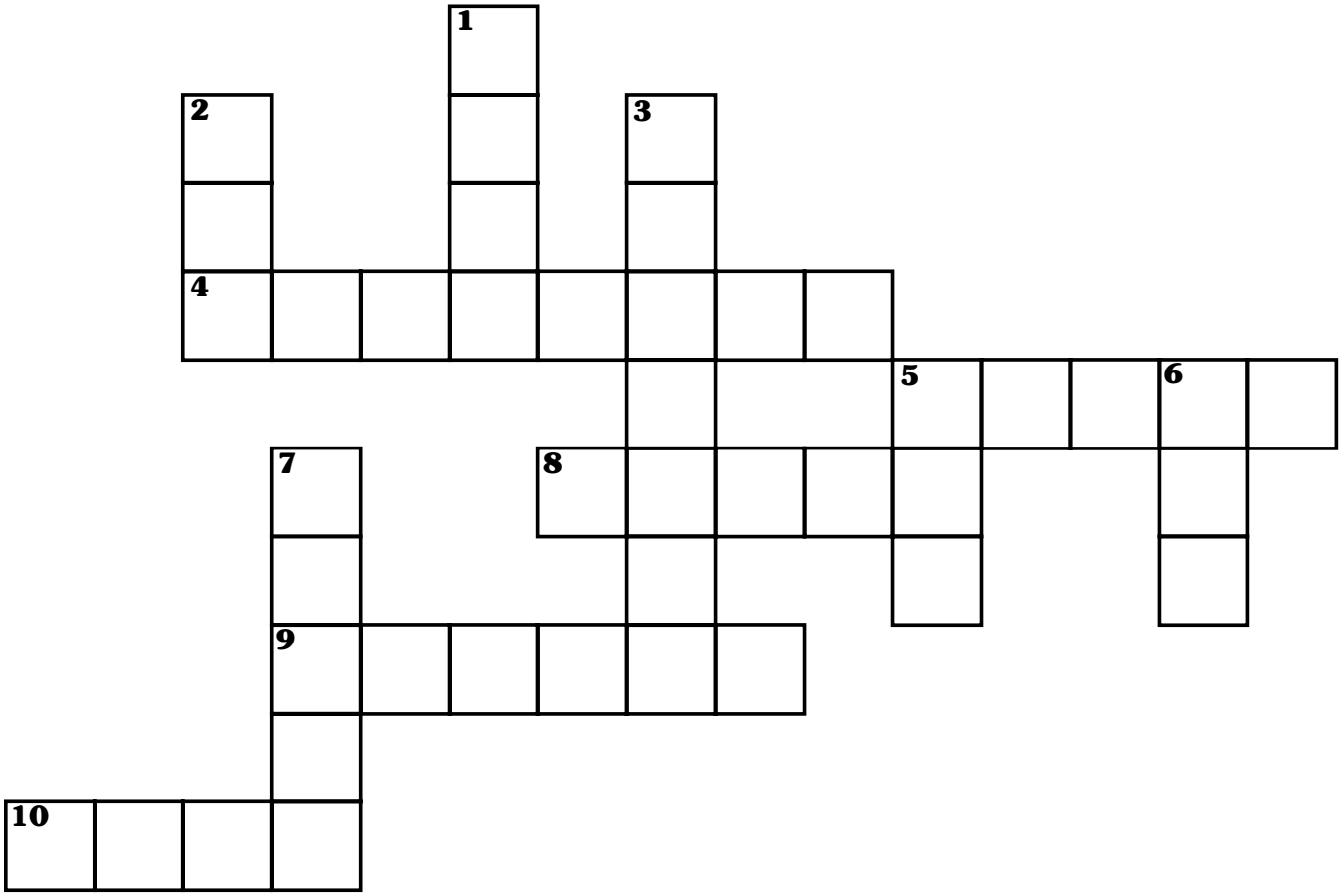
Directions for Making Your Own Architectural Hat

Cut out a cardboard base for each student using this pattern.

Have students construct a building or crowning parts of a building on the base.

Put on the hats.

Montana places that begin with the word "Big"



ACROSS

4. Big hill
5. Dirty
8. Small river
9. Wood
10. A pit

DOWN

1. A cow's headgear
2. An upper body appendage
3. Vast grassland
5. The firmament
6. Parched
7. Small mountain

Montana Places with Natural or Animal Names

E U E S E F F S L S S L T L F E L H S R C Y L N C
E U H U U U I B O S A A S T A S A N A N L E L B H
S E T S I A L S A H E T O W R I L H I T R S U N R
W U S F S L E S H L E E F T E L A B N E H F U S S
T H N D C E D A Y T D E O W T D L W T T F R N Y S
R W I B M S A O E I A E I E E N A A C A U D K S N
L A R T U E L E L E M I R E C I W C L W F I N U I
H B P S E R N D L A U O L I L L I O S L I I S E W
E S B O R F S B E F H E A L L B C Y N A A L I W R
E I L B O R I T N W W L C I L F L E G L C K H O I
O L L E O T N S H E E U T K L E R R P O T L S A G
F U K I L R E I H U R S A E R C H A E T R E B P T
S I W H H O T L N O L L T Y R R L S A D B K E S O
I I E L O E R U I E A E T R S L H O L U L E W E T
I U L A T R L U E R S N K E R C H F D E O U D O T
S U W A R D N E N L N A T H N A L O O R S R O S I
K C I L Y L F R O L H P A E S O F K S L T S E B R
S L D S E F E N A E A L E B L I T A O A A A U U R
S S W I H I L T R W C T C N I O N S H O S Y W M N
L E R T C O A U O L I W U G R R P L W B N E A E N
I A U A I S O A E N I E Y E E B C E B O I I D S L
L U L A T E L A A G E B S T H R L E T G L K H U P
A G P E L L F R H I L Y T O S E I U C T E L F C U
E L G O A O G E A I E U E T A S L N U P N H E L L
W B S O O U S B A G B A Y S I Y I L I E I E U Y R

Glacier	**Yellowstone**	**Chinook**	**Alder**
Boulder	**Buffalo**	**Butte**	**Elkhorn**
Fishtail	**Geyser**	**Musselshell**	**Rosebud**
Stillwater	**Whitefish**	**Cascade**	**Granite**
Sunburst	**Plains**	**Whitetail**	**Antelope**

Vocabulary Word Search

R S E E T L H S R R O E I N T N R T I T U P Y B L
S I R A S I I T H W P E E R S V R R D I E S A S S
L S T N C O N N S E T O T U I T I C N E E R A L M
V I S E L T S C T E T I C K N E R T D Y C N C T Y
L W L I O L C T G E T E M E T N I S R H L D C T L
H R T R B R E L Y V L L M B L H H T I S L O C A H
A C A S N S F S L N I P E T E I K T E N A I N L C
G C P I L R E Y C T M L R I N R E A L I C D S R V
L E I D I H C N M A Y E T E L C S S H E S N I S S
K C R E P N N E C T T C L P T T H T S C A I R P E
N E O A N E N N S R C N T U C E E D A E R T C C R
N C P N N I E C C E T T R I L E N P L L U N A N I
L T L T S A E E C R L E P T R U E I A R A E U E E
F N E M F T L L P S C I E I A O E E R D C R S S R
I T O E T O R S L C R R U A C E C E S R T E G S R
Y R A I R T L U T E P C E N U V L K G N D E N E P
T T R P T T L I C O T T U U U S T L S E U C F I R
C E T N U A E T E T E U U U K Y M E S H C U T E C
T M K T E I V T T R I A L C A T H I C E E I E A M
O L T I B T K R S R D O V L C L G E T I I L S R T
I E O R T E C C E E R C N E S N E P N T E L T E C
P I H T M M C N I S R N S T T A K I I L L L W E S
E R M H I R T R I W E M L K E C R E T I T C L A R
P P R C I E E L T O I R N N S R T C E E T S U R O
L O S R K R I E M R A O P L T N I I C M E C E C M

Architecture
Design
Timbers
Wickiup

Preservation
Encampment
Lintel

Construction
Style
Shelter

Rock Shelter
Landscape
Loft

Bibliography

Cleek, Richard, Margaret Geib, Bruce Noble *The Old Barn Book: A Field Guide to American Barns and Other Farm Structures,* Rutgers University Press, Camden, NJ, 1996.

McAlester, Virginia & Lee *A Field Guide to American Houses,* Alfred A. Knopf, New York, NY, 1997.

Malone, Michael P, Richard B. Roeder, William L. Lang *Montana: A History of Two Centuries,* rev. ed. University of Washington Press, Seattle, 1991.

Montana Historical Society *Montana Mainstreets Series (Guides Available to Historic Virginia City, Glendive, Lewistown, Hamilton, Kalispell, Missoula.)* Montana Historical Society Press, Helena, 2002.

Phillips, Steven J. *Old-House Dictionary,* American Source Books, Lakewood, CO, 1989.

Poppeliers, John C. *What Style Is It?* The Preservation Press, Washington, DC, 1983.

Sommer, Robin Langley *The Old House Book,* Barnes & Noble Books, NY, 1999.

Spritzer, Don *Roadside History of Montana,* Mountain Press Publishing, Missoula, MT, 1999.

Upton, Dell, ed. *America's Architectural Roots,* The Preservation Press, Washington, DC, 1986.

Van West, C. *Traveler's Companion to Montana History,* Montana Historical Society Press, Helena, MT, 1986.

(continued)

Bibliography *(continued)*

Curriculum

White, Charles S. & Kathleen Hunter *Teaching With Historic Places: A Curriculum Framework,* National Trust for Historic Places, Washington, DC, 1995.

How to Teach with Historic Places: A Technical Sourcebook, National Register of Historic Places, National Park Service, National Trust for Historic Preservation, Washington, DC, 1995.

Websites

The following websites offer excellent lesson plans about architecture and historic places.

https://www.nps.gov/subjects/teachingwithhistoricplaces/index.htm

Teaching with Historic Places from the National Park Service and the National Trust for Historic Preservation. Created by interpreters, preservationists, and educators, these lessons use historic sites to explore American history. More than 100 lessons, available free of charge on the Web and ready for immediate classroom use.

https://archkidecture.org

ArchKIDecture A fun website from the Evanston Public Library in Evanston, Illinois. Pages on Architecture Words, Wacky Stories, Build It Yourself, About Structures, Become an Architect, About Materials.

https://salvadori.org/

From inner-city New York and Columbia University's Mario Salvadori, an innovative program for middle school dedicated to education and the built environment, with emphasis on bridges and engineering.

http://www.preservemontana.org

Montana Preservation Alliance is Montana's champion for historic places and cultural heritage. MPA's website posts the latest news on historic preservation, threatened buildings and how you can help preserve Montana's heritage across the state.

https://historicmt.org

The Historic Montana website and app provides virtual tours of selected buildings, neighborhoods, and cultural sites listed in the National Register of Historic Places.

https://www.loc.gov/collections/sanborn-maps/about-this-collection/

A searchable database of the fire insurance maps published by the Sanborn Map Company housed in the collections of the Geography and Map Division at the Library of Congress.