“This is the Bottle-neck, the end of the Missouri river’s funnel. Upstream the rampaging river has smashed dikes and spread bluff-to-bluff. In places it is 16 miles wide. At Council Bluffs, this tremendous amount of water has two courses. It can take hairpin turns and flow south under Ak-Sar-Ben and Union Pacific bridges.... Or, it can break through Council Bluffs’ levee system and flood two-thirds of the city.”

Man Against the Missouri: A Document of 1952
About This Lesson

This lesson is based on the Missouri River using primary and secondary materials available at the Council Bluffs Public Library. Dianne Herzog, Youth Service Manager for the Council Bluffs Public Library, and Beverly Fletcher, Education Volunteer, wrote this lesson.

This lesson plan is formatted using the Teaching with Historic Places model developed by the National Park Service.  http://www.nps.gov/history/nr/twhp/

Where it fits into the curriculum:
Topics: This lesson could be used in units on the geography and history of the Missouri River and Council Bluffs. The Iowa Department of Education Iowa Core Curriculum involves the following curricular areas:

Essential Concept: 6-8 Behavioral Science, 3-5 Behavioral Science and K-2 Behavioral Science
- Understand the changing nature of society.
- Understand the influences on individual and group behavior and group decision making.
- Understand the process of how humans develop, learn, adapt to their environment, and internalize their culture.
- Understand current social issues to determine how the individual is able to formulate opinions and respond to those issues.
- Understand the relationship of the individual to the components of society and culture.

Essential Concept and/or Skill: 6-8 Geography, 3-5 Geography and K-2 Geography
- Understand the use of geographic tools to locate and analyze information about people, places, and environments.
- Understand how geographic and human characteristics create culture and define regions.
- Understand how human factors and the distribution of resources affect the development of society and the movement of populations.
- Understand how physical processes and human actions modify the environment and how the environment affects humans.
- Understand how geographic processes and human actions modify the environment and how the environment affects humans.
  1) Understand ways in which people depend on the physical environment.
  2) Understand humans impact the environment in positive and negative ways.
  3) Understand the environment impacts humans in positive and negative ways.
  4) Understand areas of a community have changed over time.

Essential Concept and/or Skill: 6-8 History, 3-5 History and K-2 History
- Understand the role of culture and cultural diffusion on the development and maintenance of societies.
• Understand the effect of economic needs and wants on individual and group decisions.
• Understand the effects of geographic factors on historical events.
• Understand cause and effect relationships and other historical thinking skills in order to interpret events and issues.
• Understand the role of individuals and groups within a society as promoters of change or the status quo.
• Understand the role of innovation on the development and interaction of societies.
• Understand people construct knowledge of the past from multiple and various types of sources.
• Understand economic needs and wants affect individual and group decisions.
• Understand relationship between geography and historical events.

Objectives for students:
1) To explore Historic Downtown Council Bluffs: A walking tour of the mosaics embedded in the sidewalk along Pearl and Main Streets provides a glimpse of the early years of Council Bluffs and the life and times of the people and geographic factors that developed our city.

Mosaic No. 12. River Transportation and Commerce: “From the canoes of the Native Americans to modern tugboats with strings of barges, the Missouri River has been an important means of transportation and commerce. In between came the keelboat of the Lewis and Clark Expedition and steamboats carrying passengers and supplies as far as Montana. Today the river continues to carry commercial cargo along its navigable reach from its mouth near St. Louis, Missouri to Sioux City, Iowa.” (Historic Downtown Council Bluffs)

2) To study a Midwest States map and discover the beginning and end of the Missouri River.
3) To understand that the Missouri River flows through the history of Council Bluffs.
4) To discuss and draw conclusions about the Missouri River 150 years ago and this river today.
5) To understand the three floods that affected changes in Council Bluffs—1881, 1943, and 1952.
6) To discuss and draw conclusions that the flooding Missouri River changed the ecology, history and geography of Council Bluffs.

Materials for Students:

Maps:
1) Map of the Missouri River Basin by the USGS
2) U.S. Department of the Interior Geological Survey of Omaha and Vicinity. Surveyed in 1893 and 1898
3) Location of Carter Lake, Iowa
4) Changes in the Channel of the Missouri River in Iowa, 1879-1976

Images:
Documents:
1) Weather Went Awry Over Missouri’s Watershed, Wrong Elements Combine, Hence Record High Water
2) Missouri River Basin, 1943 Flood
3) Changes of the Channel of the Missouri River Through Monona County, Iowa
4) Saga of the Sandbag

Maps:
1) Map of the Missouri River Basin by the USGS
2) Missouri River Basin
3) East Omaha Development with the Army’s Plan for River Dikes at Omaha and Council Bluffs

Images:
1) Man Against The Missouri River (cover)
2) Man Against The Missouri River (page 1)
3) The Bob Kerrey Bridge over the Missouri River

Documents:
1) Reforming the River with Rock Piles (pt 1)
2) Reforming the River with Rock Piles (pt 2)
3) River More of a Friend Than Enemy
4) Missouri River Could Become a Playground
5) Saga of the Sandbag

1) Map 1: Missouri River Basin
2) Determining the Facts: Reading 1: “Weather Went Awry Over Missouri’s Watershed, Wrong Elements Combine, Hence Record High Water and Missouri River Basin, 1943 Flood”
3) Map 2: Topological Map 1898
4) Visual Evidence 1: River Steamboat Omaha
5) Map 3: Carter Lake, Iowa
6) Map 4: Changes of the Channel of the Missouri River through Monona County, Iowa
8) Visual Evidence 3: Kanesville
9) Determining the Facts: Reading 2: “The Saga of the Sandbags” Missouri River Flooding 1952
10) Visual Evidence 4: East Omaha Development
11) Determining the Facts: Reading 3: Reforming the Missouri with Rock Piles
12) Determining the Facts: Reading 4: River More Of A Friend Than Enemy
13) Map 5: Dams on the Missouri River
14) Determining the Facts: Reading 5: Missouri River Could Become A Playground
15) Visual Evidence 5: Bob Kerrey Bridge
16) Putting It All Together: Five Activities

**Visiting the Site:**
The wild Missouri River has been tamed, but not forgotten. In 2008 the Bob Kerrey Pedestrian Bridge was built to cross the Missouri River on foot or bicycle from Council Bluffs into Omaha. Families cross the Missouri River daily to work in the metropolitan area.
The Missouri River flows through the history of Council Bluffs, Iowa.

How has the flooding Missouri River changed the ecology, history and geography of Council Bluffs?
Setting the Stage

The Missouri River is the longest river in the United States. It is 2,540 miles long. It drains all or parts of ten United States and two Canadian provinces. Its headwaters, the beginning of the river, are in the Rocky Mountains of southwestern Montana. The Missouri River ends when it joins the Mississippi River just north of St. Louis, Missouri. These two rivers together are the fourth largest river in the world.

Like most rivers, the Missouri has an upper, middle and lower part. The upper Missouri begins in the Rocky Mountains and continues throughout Montana. The middle Missouri begins where the river leaves the mountains of Montana and moves onto the Great Plains. The lower Missouri begins just south of Yankton, South Dakota, and ends at St. Louis, Missouri. Council Bluffs, Iowa, is located on the lower Missouri River.

For centuries the Missouri River followed nature’s annual spring flooding cycle. Melting snows in the headwaters caused April floods, while snowmelt and rain caused June flooding. The annual flooding cycle created a rich ecology for the Missouri River basin. Flood waters created from bluff to bluff wetlands and swampy areas that provided fertile breeding grounds for fish and fowl. Rich loam and silt were redistributed on river bank soil and the area’s geography was changed as new oxbow lakes—in the Council Bluffs area: Big Lake, Carter Lake and Lake Manawa—and chutes—Boyer Chute—were created. But the annual flooding also caused the river banks to erode and the river itself was often filled with debris, making transportation on the Missouri River difficult and treacherous.

It was not until the establishment of cities and farms along the Missouri River that the annual flooding cycle could be termed “destructive”, changing not only the geography, but also the history of the area. Kanesville, later known as Council Bluffs, for example, was established in the safety of the loess hills rather than on the river banks, as was its neighbor, Omaha. Because of a shifting river channel, another neighbor, Carter Lake, has been the center of state boundary disputes for years.

Since the founding of Council Bluffs, there have been three major floods—1881, 1943 and 1952. Only the 1881 flood brought widespread destruction to the city. The hard sandbagging efforts of many citizens prevented flooding disasters in Council Bluffs in 1943 and 1952, although other nearby areas were not so fortunate.

The 1943 and 1952 floods lead to the development of an extensive levee system around Council Bluffs and to the building of six dams by the Corps of Engineers further up river in North and South Dakota. These flood control measures have prevented any serious flood threats to
Council Bluffs since 1952. The river has also been channelized and its banks stabilized. All of these measures have allowed for increased barge traffic, the development of riverfront property into lucrative commercial and popular public areas, as well as turning the Missouri River into a recreational destination.

The “taming” of the Missouri River by this system of dams, as well as the channelization of the Missouri River, however, is not without controversy. Groups have cited the destruction of the wetlands and the loss of fish and fowl breeding grounds as a negative downside to the current flood control.
Questions for Map 1:

1. Trace the Missouri River from its headwaters until it joins with the Mississippi River.
2. How many states do the Missouri River flow through or form part of a border?
3. Where is the Upper Missouri? The Middle Missouri? The Lower Missouri?
4. Locate Council Bluffs, Iowa, on the map. On which part of the river is it located?
Determining the Facts

Reading 1: Weather Went Awry Over Missouri’s Watershed… Missouri River Basin, 1943 Flood

Before flood control, the Missouri River would flood annually, once in April and again in June.

Questions for Reading 1:
1. After reading the article: Weather Went Awry… why do you think most floods on the Missouri River occur in the spring?
2. Can you name three reasons why the Missouri River flooded in 1943?
3. Research what is an ice jam?
4. Research how ice jams were prevented and dislodged in the 1940s and how they are prevented and dislodged now.
5. Brainstorm other ways to break up an ice jam.

Questions for Map of Reading 1:
1. Using the Missouri River Basin, 1943 Flood map, can you locate and trace the Missouri River tributaries of the Little Missouri, Grand, White, Powder, James and Yellowstone Rivers mentioned in the article: Weather Went Awry…?
2. How did heavy snow and sudden melting on these rivers cause flooding in Council Bluffs?
3. Compare and contrast the current Missouri River Basin map and the Missouri River Basin, 1943 map. How are they alike and how are they different?
1. Can you locate the loess hills or bluffs?
2. When the Missouri River would flood, it would be from bluff to bluff, what does that mean?
3. How did the bluffs contribute to flooding?
4. Can you determine which parts of Council Bluffs would be under water if the Missouri River was allowed to flood from bluff to bluff? Your school? Your house?
5. Research what is a flood plain?
6. Estimate how much of Council Bluffs is on a flood plain. How much of Omaha is on a flood plain?
7. Do you think Omaha would flood as frequently as Council Bluffs? Why or why not?
8. In which direction would you predict the Missouri River would flood when it reaches the bend north of Council Bluffs? South of town? Why?
9. Today the Council Bluffs flood plain areas are developed with houses and businesses. How would you build houses and businesses on swamp land? Research how Council Bluffs changed this from a marshy area. Where did Council Bluffs find the “fill dirt”? Do you agree with their decision? Why or why not?
Visual Evidence 1: River Steamboat *Omaha*

**Questions for Visual Evidence 1:**
The annual Missouri River flooding caused the river banks to erode. The river itself was often filled with debris, making transportation on the Missouri River difficult and treacherous.
1. What does the word “debris” mean?
2. What kind of debris is shown in the oil painting, River Steamboat Omaha?
3. Can you think of other debris that might be in a river after a flood?
4. Why would debris make traveling on the river difficult?
5. How would difficult river travel affect the economy of Council Bluffs?
6. How is debris removed from the river now?
7. Is there different kind of debris in the river now?
8. Who do think should be responsible for cleaning the river now?
9. Who actually cleans the river today?
10. What is erosion?
11. How did flood waters cause erosion on the Missouri River?
12. The Missouri River is often called the “Big Muddy”. Can you guess why?
13. Why should erosion be prevented?
14. Can you think of a way to stop river bank erosion?
15. Research how the Corps of Engineers stopped the Missouri River banks from eroding after the 1952 Flood.
Map 3: Carter Lake, Iowa

Questions for Map 3:
Flooding has caused the Missouri River to change its course many times. Because of a shifting river channel, the City of Carter Lake, Iowa, has been the center of state boundary disputes for years.

1. Looking at the map of Carter Lake, Iowa, can you deduce where the original river channel ran?
2. Research the history of Carter Lake, Iowa.
3. How and when did Iowa and Nebraska determine the state boundaries for Carter Lake, Iowa?
4. If you were a judge, how would you rule? Is Carter Lake in Iowa or Nebraska?
5. What difference does it make in which state Carter Lake is a part?
6. In what other ways do river channel changes affect people living in the area?
Map 4: Changes of the Channel of the Missouri River through Monona County, Iowa

Questions for Map 4:
The annual Missouri River flooding cycle created a rich ecology for the Missouri River basin. Rich loam and silt were redistributed on river bank soil and flood waters created wetlands and swampy areas that provided fertile breeding grounds for fish and fowl.
1. Trace the different channel changes on the map Changes of the Channel of the Missouri River through Monona County, Iowa.
2. What would cause the river channel to change?
3. What is “river bottom” land? Why is it so fertile?
4. How are wetlands created?
5. Why are wetlands important?
6. Research the different types of animals, birds and fish that live in the Missouri River wetlands. Are these different from those 100 years ago? Why or why not?
7. Is flooding always bad?
Visual Evidence 2: Missouri River, 1890, 1923, 1947, 1976

Questions for Visual Evidence 2:
Missouri River flooding changed the geography of the area. Three ox-bow lakes; Big Lake, Carter Lake and Lake Manawa, as well as Boyer Chute, were created as a result of flooding.
1. Research ox-bow lakes. How are they formed?
2. Can you locate the three ox-bow lakes found near Council Bluffs, Iowa, on these maps?
3. How do they change in each map?
4. Why did Iowa Lake get smaller in each map?
5. What is Iowa Lake now called?
6. Locate the Boyer Chute on the map. What is it? How was it formed? What is its use today?
7. How did the state line in Carter Lake change throughout the years?
8. How did the river channel change in each map?
Visual Evidence 3: Kanesville

Questions for Visual Evidence 3:
The annual threat of flooding has changed the history of Council Bluffs beginning with the founding of Kanesville.
1. Examine the oil painting *Kanesville*. Notice there are no buildings from the Missouri River to the base of the bluffs. Why?
2. Can you deduce why Kanesville, later known as Council Bluffs, was founded in the bluffs and not near the Missouri River?
3. Examine the topological survey map of the Council Bluffs and the surrounding area (Map 2). Can you deduce why Omaha was founded near the Missouri River unlike Council Bluffs?
Determining the Facts

Reading 2: The Saga of the Sandbag

Questions for Reading 2:
There have been three great floods to threaten the city of Council Bluffs, Iowa: 1881, 1943, 1952.

1. Why do you think this document is called Saga of the Sandbag?
2. What is a sandbag? Research why and how to sandbag during a flood.
3. What other meaning does the word “sandbagging” have?
4. Can you think of other ways to hold back the flood waters?
5. What is a crest?
6. Why was it important to know the height of the crest?
7. Graph the crest levels for each day. On what day did the river crest?
8. What does evacuation mean?
9. Most of the west and south parts of Council Bluffs were evacuated. Why just these areas?
10. Would you have been evacuated during the 1952 flood?
11. Where would you have gone?
12. If you were the mayor during the 1952 flood, what have you done each day from Tuesday, April 8th to Tuesday, April 22nd?
Visual Evidence 4: East Omaha Development

Questions for Visual Evidence 4:
After the 1943 flood, a system of dikes and levees was proposed.
1. What is a dike?
2. What is a levee?
3. Research how to build a dike or levee.
4. Looking at the East Omaha Development map, where does the dike begin and end of the 
   Nebraska side of the river? The Iowa side?
5. Why were dikes built only in these areas?
Determining the Facts

Reading 3: Reforming the Missouri With Rock Piles

Questions for Reading 3:
1. Research river channelization.
2. How does channelization prevent flooding?
3. How does channelization aid river travel and goods transportation?
4. How would you channelize a river?
5. How did the Corps of Engineers channelize the Missouri River?
6. What are the benefits and drawbacks of a channelized river?
Determining the Facts

Reading 4: River More Of A Friend Than Enemy

Questions for Reading 4:

1. Besides flood control, what other benefits do dams provide?
2. Do dams have any drawbacks?
3. Who is responsible for these dams?
4. What would be the benefits and drawbacks of constructing a dam near Council Bluffs?
5. According to the article, “River More of a Friend than Enemy”, why did the author choose that title? What are the main reasons why the Missouri River is a friend?
6. The article was written in 1972, using a Venn diagram, research and compare 1972 predictions with current data.
Map 5: Dams on the Missouri River

Questions for Map 5:
After the 1952 flood, a series of dams were built on the Missouri River.
1. What is a dam?
2. Research why and how dams are constructed?
3. Looking at the map, Missouri River Basin, locate all the dams on the Missouri River.
Determining the Facts

Reading 5: Missouri River Could Become A Playground

Questions for Reading 5:

1. What is the new role of the Missouri River?
2. What are the obstacles for future river development as outlined by the State Conservation Commission’s Planning Report?
3. Using the information outlined in the article, list the pros and cons for the development of the Missouri River for recreation use.
4. According to the article, “Missouri River Could Become a Playground”, why did the author choose that title? What are the main reasons why the Missouri River is a playground?
5. Using a Venn diagram, research and compare the article “River More of a Friend Than Enemy” and “Missouri River Could Become a Playground” with current data.
Visual Evidence 5: Bob Kerrey Bridge

Questions for Visual Evidence 5:
Because of flood control, Council Bluffs has been able to reclaim and develop land near the Missouri River.
1. Research how this land has been developed up to now and what are future plans for this land. How would you use this land?
2. As the city develops the river front, how will flooding affect Council Bluffs in the future?
Putting It All Together

“The Flooding of the Missouri River” invite students to explore how the Missouri River flows through the history of Council Bluffs. Twice a year, the Missouri River would flood from bluff to bluff, sometimes making the river several miles wide. It has shaped not only the geography and ecology of the Council Bluffs’ area, but also its industry, recreation and people. The wild Missouri River has been tamed, but not forgotten. The Missouri River has always, and will continue, to shape the history of Council Bluffs.

Activity 1: The Missouri River Is Changing

Using the maps, discuss the changes in the Missouri River in 1880, 1923, 1947 and 1976. What caused the Missouri River to flood? What are some effects or changes to the area? (To demonstrate this problem more to students, create a sand table in your classroom with a river. Demonstrate flooding of your man-made river and show how a levee or dike can stop the flooding.) Using a Venn diagram, the students should compare changes in the Missouri River. For example: Compare how the river would look before and during the flood. Compare problems of the Missouri River and solutions done by the Corps of Engineers. Compare and contrast the flooding of the Missouri River in 1881, 1943, and 1952.

Activity 2: Think Like a Writer!

Using the enclosed documents and photos, think like a writer and choose one of the following topics: 1) Write your own newspaper article about the Missouri River flooding in Council Bluffs in 1881, 1943, or 1952. 2) Using journal or diary format, students will write five entries about each of the floods in Council Bluffs in 1881, 1943, or 1952. 3) Pretend that you traveled to Council Bluffs on the Missouri River in 1943 or 1952; write a letter home to your family about your experiences with the flooding Missouri. Then design a postcard showing the Missouri River at your chosen time period. 4) Pretend you are in charge of evacuating the city of Council Bluffs in 1943 or 1952; research newspapers and then prepare the evacuation routes, locations and stocking of shelters, etc. of the city. What would be the cost of an evacuation? How many citizens were evacuated during those floods?

Activity 3: Think Like a Debater!

Choose one of the following debate topics to share with your class. 1) Research the state boundary dispute of Carter Lake. Then write your script and role play the Carter Lake state boundary dispute. 2) Write a persuasive speech or debate on: flooding, ecology, wetlands, or river channelization. 3) Research through the newspaper efforts to preserve the Loess Hills in Southwest Iowa. Then debate the preservation and destruction of the Loess Hills.
Activity 4: Think Like a Mathematician!

Solve ten math problems using Facts and Figures from Saga of the Sandbag and show your work to solve the problems. The first two math problems are written for you—1) If gas is $3.00 per gallon and each truck get 10 miles to the gallon and drives 5 miles a day, how many gallons of gas was used for one day for the 400 dump trucks? 2) If the Red Cross cared for 1,328 evacuees each day and it cost $2.00 for breakfast; $4.00 for lunch and $6.00 for dinner, how much would they spend each day, etc? Write eight additional math problems about the Missouri River flooding and then solve your problems and show your work.

Activity 5: Showcasing History!

Museum curators use artifacts or objects and primary sources to tell a story about a time or a person or even an idea in the Museum so that the public can understand and see interesting things. Choose one of the topics. 1) Take the sources enclosed and create an exhibit of your own about the Missouri River flooding? What part of this story would you tell? Choose sources to use and then write a paragraph as a label for each one. What would you name your exhibit? 2) Research the flora and fauna found around the Missouri River. Choose six plants and animals (three flora and three fauna). Then write a paragraph with an illustrated picture about each plant and animal that you chose. Create an attractive display board showcasing the plants and animals. As a class, invite another class to view your exhibits. Have this other class evaluate your displays?
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