DIGITAL TIME CAPSULE

Overview:

In this activity students explore the University of Alaska Fairbanks Oral History Program's Climate Change Jukebox to make observations about climate change based on interviews within the Jukebox. Students then digitally record their own observations to be used as a digital time capsule.

Objectives:

The student will:
- summarize interviews in Climate Change Jukebox;
- determine current climate conditions in their own community; and
- create a digital record of the climate to be used by future generations.

Targeted Alaska Reading Performance Standards for the High School Graduation Qualifying Exam

R4.4 Read and follow multi-step directions to complete complex tasks.

R4.8 Analyze and evaluate themes across a variety of texts, using textual and experiential evidence.

Targeted Alaska Grade Level Expectations:

Science

[11] SA1.1 The student develops an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring, and communicating.

[11] SC3.2 The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by analyzing the potential impacts of changes (e.g., climate change, habitat loss/gain, cataclysms, human activities) within an ecosystem.

Whole Picture:

Alaska's indigenous people, deeply rooted to the land, have observed changes in the climate in recent decades. In order to understand, monitor and prepare for changes in their environment, students must develop a deep understanding of the place they live. They must also be able to compare their own contemporary observations with historic information about that same environment.

Materials:

- Digital camera or video recorder
- Computer with Internet access and classroom speakers (or individual ear buds, one per student)
- VISUAL AID: "Telling Our Story"
- VISUAL AID: "Glaciers, Then and Now"
- STUDENT INFORMATION SHEET: "Traditional Ecological Knowledge (TEK) Panel"
- STUDENT WORKSHEET: "Project Jukebox"
- STUDENT WORKSHEET: "Digital Time Capsule"

Activity Preparation:

1. Explore the Climate Change Project Jukebox website, found at http://jukebox.uaf.edu/ClimateChange/home.html. (NOTE: You must use capital C's when typing ClimateChange for the link to work.)
2. Familiarize yourself with the digital equipment used in the lesson.
3. Scout areas around the school and community that would work for recording video or photographing for digital time capsule. Determine whether you will need to complete the lesson over more than one class period. (See Activity Procedure 5 - 7 and STUDENT WORKSHEET: "Digital Time Capsule.")

4. Talk to school administrator about how to best store the digital time capsule for future years. Consider submitting a copy of the time capsule to city officials as well.

Activity Procedure:

1. Introduce lesson. Explain students will read about and listen to Elders and culture-bearers talk about climate and climate change. Students will then create their own digital time capsule, documenting current observations about their community and climate for future generations.
2. Hand out STUDENT INFORMATION SHEET: "Traditional Ecological Knowledge (TEK) Panel." Choose an appropriate reading strategy. Consider:
   a. Assigning students to each of the 12 names on the panel then asking them to read the corresponding narrative;
   b. Dividing students into small groups or pairs and letting them read together;
   c. Allowing independent reading time.
3. Discuss the reading. If needed, use the following questions as discussion starters:
   a. What is the focus of many of the narratives?
   b. Why is important to document local observations?
   c. Is traditional knowledge important in the Athabascan culture? In other cultures?
   d. In the past, how has traditional knowledge been passed on?
   e. How can modern technology aid in documenting traditional knowledge and observations?
4. Hand out STUDENT WORKSHEET: "Project Jukebox." If you have a multimedia projector, display the home page for Climate Change Project Jukebox. Review the names and locations of the site contributors.

   NOTE: For the purposes of this lesson, use audio clips from Orville Huntington of Huslia, Caleb Pungowiyi of St. Lawrence Island, Martha Stackhouse of Barrow, and Kenneth Frank of Arctic Village.

   Explain students will listen to audio clips accompanied by a written transcript shown on the screen. Play as many clips as desired, monitoring for student engagement. Students should take notes on clips while they listen, noting name of speaker, audio clip title and climate issue addressed.
   a. Open a Web browser and navigate to http://jukebox.uaf.edu/ClimateChange/home.html.
   b. Click on the name and picture of a person to access his/her interview.
   c. Click on a blue, underlined hyperlink to access the transcript of that section of the interview.
   d. Click on the Audio button at the top of the screen to listen to the audio. A new page will open and display the audio controls. Pause and restart audio as necessary while students listen. Allow time for students to fill in required information on STUDENT WORKSHEET: "Project Jukebox."
   e. Display the transcript page so students can read along while they listen.
   f. When the interview clip is complete, click the back button to return to the previous screen to choose another clip. Allow time in between clips for students to finish notes. Discuss each clip as prompted.
5. Explain students will create a digital record to be stored for future use. By documenting the current climate conditions in their community, students will give future generations a record for comparison. Climate trends are documented over a period of at least three decades. This student work may be viewed by students in the year 2040! Show VISUAL AID: "Glaciers, Then and Now." Discuss the value of documenting existing conditions.
6. Divide students into pairs or small groups, then hand out STUDENT WORKSHEET: "Digital Time Capsule." Review the information requested on the worksheet.
   Step 1: Consider asking different groups to research different pieces of information, then have the group report back to the whole class.
   Step 2: Pairs or small groups can brainstorm ideas. Ask one group member to be the recorder.
7. In a group discussion, share and review the information gathered in Step 1. On the board combine the brainstorm ideas for each category. Discuss the best way to decide which ideas to use.
8. Use VISUAL AID: "Telling Our Story" to plan the sequence of filming for filming the project then complete the filming. (See Activity Preparation.) Plan an introduction that explains the purpose of the project.

DIGITAL TIME CAPSULE

NOTE: If you do not have a digital video camera, students can prepare text to accompany a photograph display, or create a slide show in Microsoft PowerPoint, Picassa or iPhoto. Movie Maker and iMovie also allow sideshow production.

9. Allow the class to present the digital file to school administrators and city officials as a digital time capsule.

Answers:

STUDENT WORKSHEET: Project Jukebox

Students should listen to three audio clips and record the following information for each:

- Name of speaker
- Audio clip title
- Main topic
- Supporting information (amount will vary depending on clip)

STUDENT WORKSHEET: Digital Time Capsule

Answers will vary.

GLACIERS, THEN AND NOW

Muir Glacier, Alaska

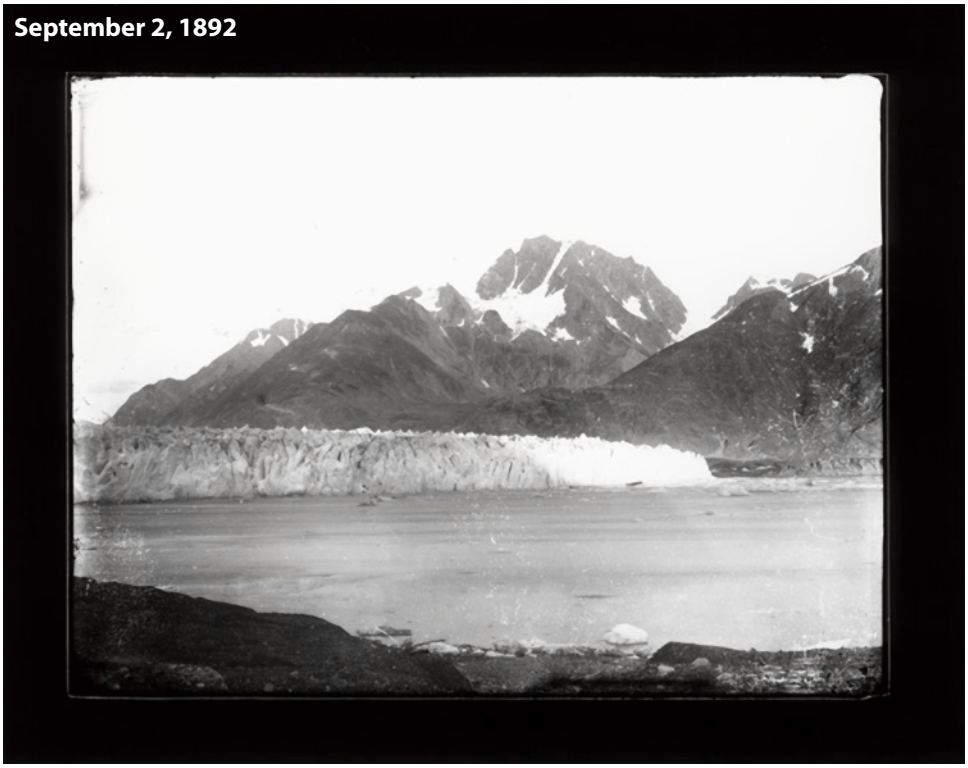


Photo by Harry Fielding Reid, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.

Photo by Bruce F. Molnia, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.

GLACIERS, THEN AND NOW

Pedersen Glacier, Alaska

Photo by Louis Pedersen, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.

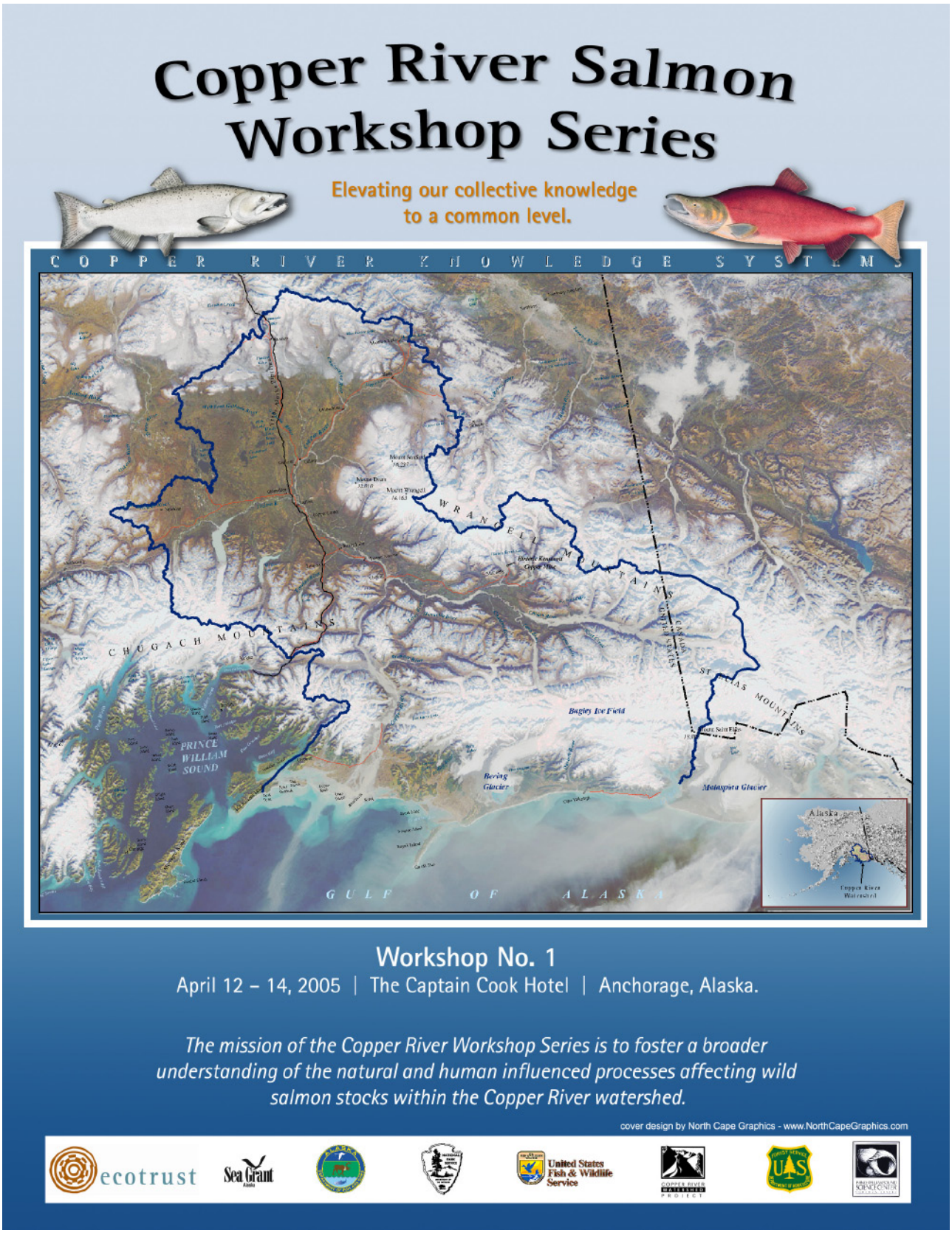
Photo by Bruce F. Molnia, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.

GLACIERS, THEN AND NOW

Toboggan Glacier, Alaska

Photo by Sidney Paige, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.

Photo by Bruce F. Molnia, courtesy of the National Snow and Ice Data Center / World Data Center for Glaciology, Boulder.



Excerpt from: The Copper River Salmon Workshop, April 12-14, 2005
Traditional Ecological Knowledge (TEK) Panel: Ahtna Salmon Life Cycle
Bill Simon and James Kari, Facilitators

TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK) PANEL

Traditional Ecological Knowledge (TEK) Panel

GLORIA STICKWAN: One of the significant gaps in state management systems is the incorporation of traditional knowledge. This can be done by listening to the people that attend the Board of Fisheries meetings, doing research jointly with the tribes, and listening to the oral history of the elders. They are not far off when they say that they have caught thousands of fish in one day. To get true historical data of what these runs were like in the 1930s, '40s and on, to know about the timing, the composition, the weather conditions, the flow and temperature of the water: all of these data can be used by state and federal management systems.

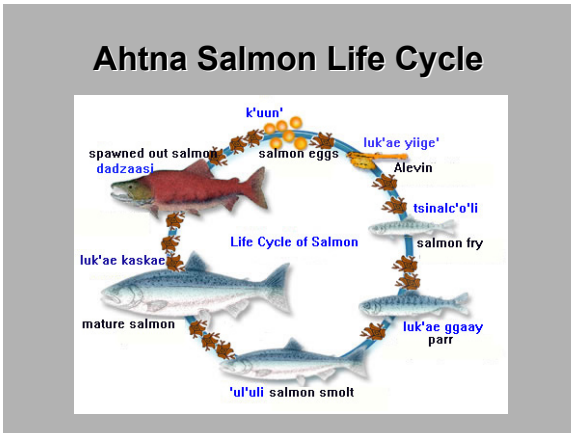
KATIE JOHN: Fish is more *engii* [taboo] than other animals that walk around. Because the fish goes down to ocean, and after four years, he comes back for die. That why they call engii. They got to take care really good, the fish. When they cut it up and smoke it, the backbones and head they feed to the dogs.

KATHERYN MARTIN (Katie John's granddaughter): Her dad, Charlie Sanford, had a bridge at Tanada Creek, and that's where he would put in fish traps. He would go out and listen to the birds. How do you say that bird?

KATIE JOHN: *Xa' diidi* (the myrtle warber). When salmon come, same time that bird come. My daddy, before he put the fish trap in the water, every morning he went out and listen for that bird. Sometime they talk by the creek and my daddy come back in and say, "I don't think we gonna have too much salmon this year. Not too many birds talking."

KATHERYN MARTIN: When the first salmon run, there's no kids. No young women are allowed around the creek or the bridge. They had really high respect for the salmon. They had really high honor. If someone got a nosebleed, they weren't allowed to go around that creek for three days. After they get that first fish, they dump them out on the bank. They never club that first run. They never club them to kill them.

We're not against commercial fishing. We are against sports fishing because my grandmother saw it on TV. They bring the fish in, they haul it up, they take picture, and they put it back in water. She said, "That's playing with food. That's *engii.*" And she wonder how that fish survive after he get hook in his mouth. His mouth all tore up now.



BILL SIMEONE AND JAMES KARI: Traditional Ecological Knowledge (TEK) includes an intimate and detailed knowledge of plants, animals, and natural phenomena. The Ahtna recognize and name all fourteen species of fish found in the Copper River basin, as well as naming 21 different salmon runs or stocks on the Upper Copper River.

Her mom put away fish — 40 bales. And one bale was 40 fish. That's 1600 fish. Can you even imagine that? We're barely getting even 200 now per family. And it wasn't just used for her family. It was shared with other families. And we still do that today.

One thing that's different now from when she was growing up is the Batzulnetas salmon. "Where's the Batzulnetas salmon? I never saw that salmon for a long time," she said. I was showing her these pictures up here. She said no. It's all silver, and he's bigger. And the males are as big as the females, just a little bit different.

JOENEAL HICKS (Katie John's grandson): Families were strategically located where salmon harvest was abundant. Back in the old days, villages basically consisted of families. One's use of a fish camp was respected by another. Families migrated with the changing seasons. You might be at a fish camp for May–June, then move to the summer camp up in the mountains for sheep. Then you probably move to the fall camp for moose. Today, land status makes it difficult to get to fishing grounds or from one place to another. Just in the Mentasta area, you probably have five or six different types of land status.

There was mention this morning of collaboration and cooperation. It seems to me that here is teamwork in play. And I ask that we rethink bringing the issue of subsistence back to the table. Several years ago, 90% — maybe less maybe more — favored a constitutional amendment. Maybe this would be the place to start thinking about that.

TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK) PANEL

NICK JACKSON: For the first fish, you got to take a bath. That's just how they respect fish. When fish start running, down our way, they look for a tree that starts budding. Some go by the birdcall. You look for evidence. In the early 1920s was when the fishwheel came in. Prior to that it was all dipnet, made out of roots from the spruce tree. Going back, one basket would pick up three fish. You'd catch 2–300 fish within an hour and have to shut down the fishwheel. I've seen that. But now you are lucky to get 20–30, unless you hit the run just right.

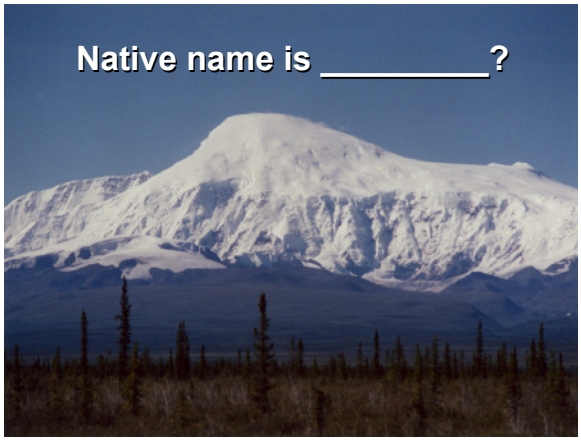
MARKEL PETE: Everything's been said that I know. That *engii* is a real thing for the native people. If you don't respect the moose, caribou and fish, one starving Indian you're going to see. That's how it was.

I made a lot of money doing the pipeline, but it's no good to me. Today we're talking about fish. That's the more important thing that you can have. Better than money.

If you go up Denali Highway, there was an Indian hunting ground. You call it subsistence. No. We can't get moose. Our berries are picked before we get there. That's how we grew up – with natural food, natural berries and stuff like that. Today, we can't find berries. Sometimes we can't find where we can fish. If we try to fish, we can't get any fish.

PAULI JERRUE: Everyone had their own fishcamp area – the family – and everyone respected it and knew where it was. Our fishcamp that we have right now – other families are using it at the permission of my mother.

A new thing has come up in the erosion of the river bank. It's eroded before our eyes these last few years. When we first started fishing in the area, we didn't see so many boats – just a canoe or a raft. But now we're seeing more of the bigger, motor boats – the sightseeing boats – that you can hear coming a long, long ways. When we first started to observe them, we didn't have knowledge about wakes. When those boats go by they make a big wake. I've noticed that every time I see these boats go by and watch this wake go on to the other side of the river, then you can see the erosion happen at the same time. It's amazing. It cuts under and the top falls in.



JOENEAL HICKS: Mt. Sanford (K'eɬt'aeni)has always been a symbol to the aboriginal inhabitants. This mountain signifies that we are the headwaters people. It served as a landmark of kinship and territory to the would-be travelers entering our area.

JOHNNY GOODLATAW: I asked my dad one time to help me build a fishwheel. He said, "No, you learn by yourself." I figured it out. I watched people. Today, I teach my younger generation how to supply fish, how to cut fish, and all that. Now I run a summer culture camp. Show the young kids how to sew baskets and do traditional things.

LONITA LOHSE: Every year my dad would tell us when the first fish was going to come. A few years ago, Fish and Game came down and wanted to put sonar on my dad's property. And it ran on the date that my dad told them it was going to run.

I work for the Chitina Native Corporation. We do have a lot of trouble with trespassing on our land. This year we are going to put a fence up.

GILBERT DEMENTI: Everything I've heard here from the Athabascan people of the Copper region is true on the Yukon River also. I remember my mother used to tell me, "We have to set the fish net. The fish are coming." I asked her how she knows, and she said, "It's the bird singing."

JAMES KARI: We do not have a Ahtna language map up on the wall. There are 2080 or so Ahtna place names on file. People are completely consistent on what they call creeks, even those that cross Athabascan language barriers.

BILL SIMEONE: What we tried to do – Jim Kari and I with the help of Ahtna elders – is to show that these everyday practices represent a systematic knowledge, with systematic practices, including goals of escapement. There were all kinds of rules and regulations governing fishing that allowed for the maintenance of the fishery. And there's a whole cosmological basis. The way to keep the system going is by observing the rules that maintain ecological connections.

NAME: _____
PROJECT JUKEBOX

Directions: Listen to audio clips from the Project Jukebox site. Each audio clip is accompanied by a written transcript. As you listen and read, take notes below. When you are finished listening, complete the Critical Thinking Question on page 2.

Audio Clip 1

Name of speaker: _____

Audio clip title: _____

Climate issue addressed: _____

Observation made:_____

_____

_____

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Additional notes: _____

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Audio Clip 2

Name of speaker: _____

Audio clip title: _____

Climate issue addressed: _____

Observation made:_____

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Additional notes: _____

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NAME: _____

CLIMATE CHANGE IMPACTS IN THE ARCTIC

Audio Clip 3

Name of speaker: _____

Audio clip title: _____

Climate issue addressed: _____

Observation made: _____

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Additional notes: _____

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Critical Thinking Question

Directions: In a well thought-out paragraph, answer the following question.

How is the recorded information of observations made by the Elders important to understanding climate change and its affect on communities?

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NAME: _____

DIGITAL TIME CAPSULE

Directions: You will be creating a digital time capsule that represents your school and your community for future generations. The focus of the project is climate and climate change.

Imagine this Digital Time Capsule will be viewed again in the year 2040. You will want to provide photos and video in your project that represent your community today. Think about what would be valuable to see in 2040!

STEP 1: Gather information that could be important to your climate change Digital Time Capsule. You may need to search online for some information. You may need to interview local Elders for other information.

Name and location of your community: _____

Current population: _____

Annual average precipitation: _____

Average temperatures:

Summer (June, July, August): _____

Winter (December, January, February): _____

Recent wildfires: _____

Other recent changes to your community such as erosion, dying vegetation, bird migration patterns changing, etc.:

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Elder Observations: What do Elders in your community say about changes they see?

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NAME: _____

DIGITAL TIME CAPSULE

STEP 2: Use the following spaces to brainstorm ideas about other things you'd like to include. How can you show future viewers important observations about the current climate?

The plants and animals around your community are clues to the climate. What kinds of vegetation are around? What are the predominant species of plants? Describe the ecosystem around your community. What is the land like? Describe the terrain around your community. Are there areas of permafrost? What does this say about the current climate in your area?

The weather dictates most outside activities. What is the weather usually like in the summer? How cold does it get in the winter? What are the favorite activities of each season? When does each season usually start? End? What does this say about the current climate in your area?

NAME: _____

DIGITAL TIME CAPSULE

The water in your community is another clue. Photos of shorelines are a good way to document current conditions. Is erosion occurring along the ocean shore or riverbank? Is a nearby lake growing or shrinking? Has the availability of drinking water changed?

What other issues are important in your community? Did your interviews with Elders bring anything to light?