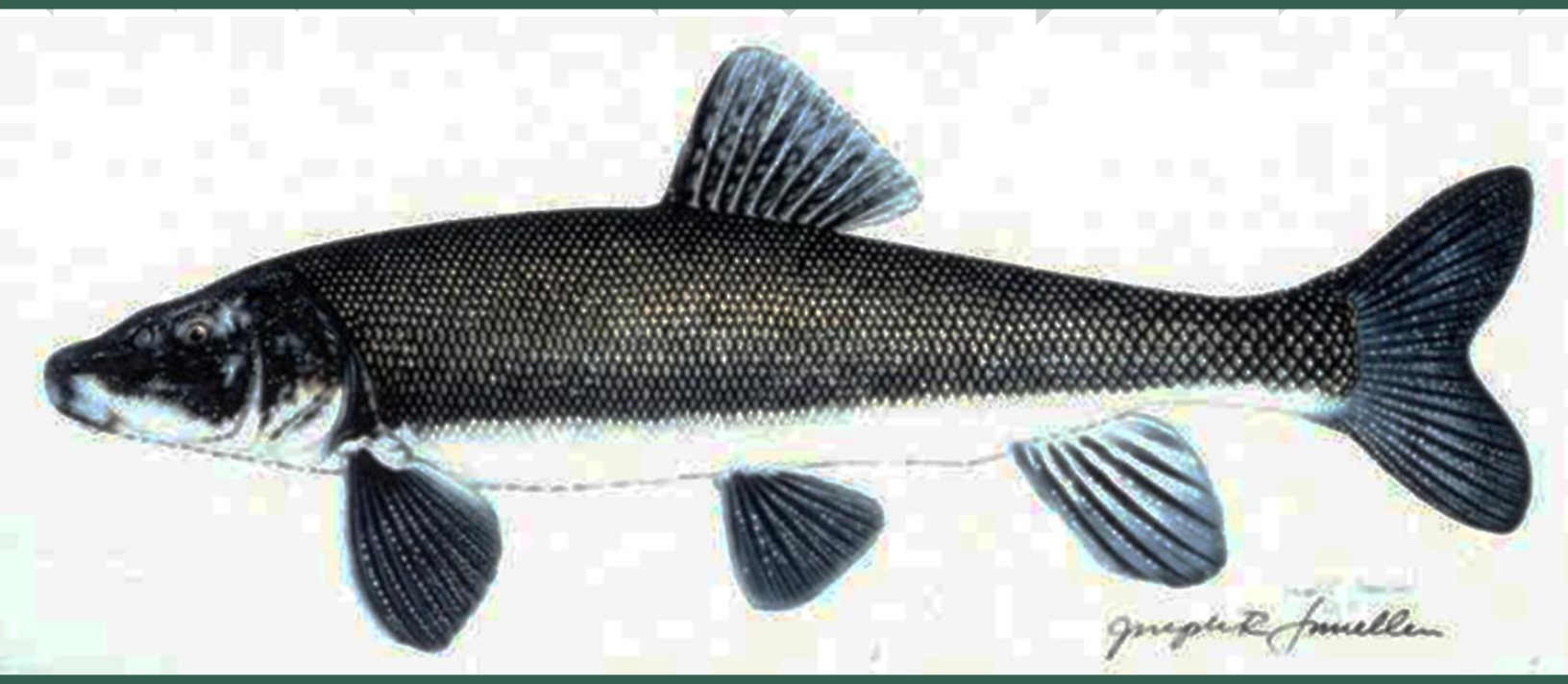
C’waam and Koptu Lessons:

2nd Grade

A lesson on the habitat changes that led to the endangered species status of the C’waam and Koptu fish of the Klamath Basin and why it matters.



C'waam and Koptu Lesson Content

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Introduction to the C'waam and Koptu of the Klamath Basin

The Klamath Tribes have always lived in and around the Klamath Basin. The Klamath Tribes consist of the Klamath and Modoc Tribes and the Yahooskin band of the Paiute. There is more to it, but like most of Native history, it is complex. See the Notes section for a more detailed description. Long ago, our basin looked very different. Where there are now dry pasture and crop lands, there used to be lakes and wetlands. The marshes of the area were a stopping point for hundreds of species of birds on their long migration. They would eat and rest on the land. The wildlife was abundant. And the Klamath people lived off what was available from the land. Foods that are traditional sources of nutrition for Indigenous people are called *First Foods*. One of the *First Foods* of the Klamath people is the sucker fish that are native to the Klamath Lake and rivers around it. These fish are the C'waam (pronounced tch-wom) and Koptu (Pronounced cop-tu). They were called Lost River Suckers by the settlers to the region. And they are an endemic species. These fish have adapted to live in this specific environment. The fish and the Klamath have lived here for *time immemorial*. However, the Klamath Basin has changed so drastically, that they are no longer suited to live here, and the fish are dying.

The Klamath Lake is the largest body of freshwater west of the Rocky Mountains. Before the land was converted to agricultural use, it was largely marshes and wetlands that covered much of the area. In 1902, President Theodore Roosevelt authorized the reclamation of swamps and lakes to increase land acreage available for agricultural use. Lakes and wetlands were drained for cultivation. This changed the ecosystem and has caused a steady decline in the health of the Klamath Lake and wildlife around it. This has been compounded by a significant decrease in the amount of rain and snowfall in the region over the past 20 years. Two species that have suffered to the point of almost certain extinction are the C'waam and Koptu fish. These fish are culturally significant to the Klamath people. And they are just one part of the natural habitat that has been devastated by the change in the land. The Klamath people have lost many other traditional first foods.

The goal behind this lesson is to teach students the changes that took place in the Klamath Basin and the impact it has had on the wildlife here, particularly the C'waam and Koptu fish. We want students and teachers to understand the importance of these fish to the Klamath people and surrounding community. Our C'waam creation story ties the health of these fish to the health and prosperity of our people. We believe that the fish are intricately tied to the health of our people. And we share this belief through the creation story. Indigenous people have long used stories to explain the world around them and recent studies have reinforced the importance of story in the learning process.

We hope this curriculum serves as a jumping off point for you and your students to talk about the environment and how important it is to protect it.

Lesson Overview for Teachers:

The first lesson focuses on teaching students about habitats. You will read a book or watch a video with your students about habitats. Next, your class will head outside to explore the habitat around your school. Finally, they will learn about the habitat of the Klamath Basin and how it has changed over the years.

The second lesson introduces the idea that people and events of the past affect the present and the future. Your class will explore what changed in the Klamath Basin over the last century and how these changes affected the habitat. They will recreate the timeline and describe events in it. *(One of the topics is the importance of biodiversity, meaning many different types of living things. This is a fantastic way to connect to a lesson about diversity in human beings. And how a diverse school, community, and friend group is important.)*

The third lesson teaches the importance of the C'waam and Koptu to the Klamath people. Students will learn about the creation story and the C'waam Ceremony. They will also learn about the importance of ceremony and tradition.

The final lesson is on how events and people of the past affect the future. This section will cover how the change in land use has ultimately led to the current unhealthy state of Klamath Lake. This lesson can be particularly tricky. There are many emotions around the water usage in the Klamath Basin. There are many stakeholders with valid concerns. Our objective is not to pit one side against another, instead it is a shared understanding of how we got here and how important it is to restore our lake to health. With a common goal of unity and collaboration, a solution is feasible. Ultimately, we want a healthy environment for this and the next generation of students. In many ways, we don't inherit our land from our ancestors, instead we borrow it from our children. Let's start important discussions about being good stewards of our environment.

State Standards:

Science:

1-L4-1

Social Science:

2-17, 21, 23, 26

Essential Understandings:

Since Time Immemorial
Lifeways
History

Learning Outcomes:

- Students will be able to describe a habitat.
- Students will be able to compare the habitat of the Klamath Lake to other habitats.
- Students will be able to name at least four plants or animals that live in the Klamath Basin.
- Students will be able to explain what led to the Klamath Lake becoming unhealthy.
- Students will be able to why traditions and cultural celebrations are important.
- Students will be able to describe the problem of an unhealthy lake as well as discuss different opinions and possible solutions.

Vocabulary:

C'waam and Koptu – Sucker fish that are endemic to the Klamath Basin.

Chronological – Events arranged in order of time.

Biodiversity – The variety of living things in a given space.

Endemic Species – Species that only exist in one place in the world.

Habitat – The natural home of an animal, plant, or organism.

Time Immemorial – For as long as anyone has a memory.

Unity – The feeling of being one with a group.

Step One. Read a book.

Choose one of the books below to learn about habitats. Or choose one of your own. Alternatively, you can play one of the videos in the *Reference Materials* section below.

Walk this Wild World: Lift the Flap by Sam Brewster

Over and Under the Pond by Kate Messner

Who's Hiding in the Woods? By Katharine McEwen

Who's Hiding on the River? By Katharine McEwen

On Duck Pond by Jane Yolen

Welcome to the Neighborhood by Shawn Sheehy

Squeak! By Laura McGee Kvasnosky

One Small Square: Woods by Donald Silver

In the Woods by David Elliott

If you Take Away the Otter by Susanna Burhman-Deever

The Night Flower by Lara Hawthorne

Use the book as a starting off point to learning about what a habitat is and different habitats found on Earth. Discuss how the classroom can be seen as a habitat. Everything in the room serves a purpose. Remind them that they have cubbies to store their coats and lunches. The desks give them somewhere to sit. If the book you chose is specific to a certain habitat, ask the students about what lives there. Discuss how different animals are suited to different habitats. A fish lives in water and not the desert because it can't breathe air, it needs to get oxygen through water.

Step Two: Take a Walk

Take your students outside to look for what grows in the habitat by your school. Have them explore and write down what they find. You could keep a master list or create one when you get back to class on a whiteboard. Make sure that you cover living things from plants to insects to birds to animals. Emphasize that the more wildlife there is in a habitation (Diversity), the healthier it is.

Step Three: Klamath Lake Habitat PowerPoint

Go through the Klamath Basin Habitat PowerPoint with your class. It is short and explains the different types of habitats in the Klamath Basin. Notes are included in the PowerPoint, of you can use the following notes:

Slide 1: *We are going to learn about the different types of habitats that are found in the Klamath Basin.*

Slide 2: *The Klamath Basin has a lot of different habitats.*

Slide 3: *We have lakes where fish live and birds hunt.*

Slide 4: *Croplands are where we grow food to eat.*

Slide 5: *Marshes where birds nest and plants clean the water.*

Slide 6: *Grasslands for owls to hunt mice.*

Slide 7: *Forests for deer and elk to reside.*

Slide 8: *Pastures for raising cattle.*

Slide 9: *And rivers where fish lay eggs.*

cont.

cont.

Slide 10: *But not all these habitats are natural. Some are created by people. Do you know which two aren't natural?*

Slide 11: *Croplands and pastures are not natural. We created them to feed people.*

Slide 12: *Farming and Ranching has only been in the Klamath Basin for about 100 years. Before that, there was no cropland or pastureland found here.*

Slide 13: *Before the land was changed to pastures and crop fields, there was lots of biodiversity. Biodiversity means different kinds of living things. Systems that have lots of biodiversity are healthier than those that don't.*

Slide 14: *Land that is used for agriculture is some of the least biodiverse systems. Therefore, they are less healthy, especially for living things that are native to an area.*

Step Four: Klamath Basin Habitats

Hand out the Klamath Basin Habitats worksheet. Explain to the students that they are going to cut out all the different habitat pictures. Then, they will place them in the correct column. On the left are the habitats that are Natural to the Klamath Basin. The other side will be those that are Not Natural to the Klamath Basin. Students can then use the word list to write the name of each habitat under the picture.

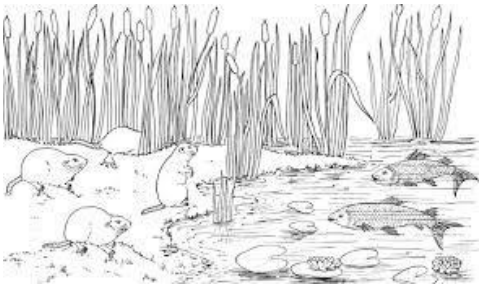
Step Five: Compare Habitats

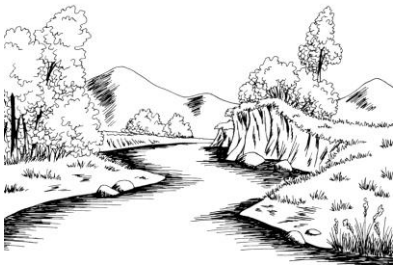
Have students compare what they find in the different habitats of the Klamath Basin. For example, what is found in the lake that isn't found on crop land? What can you find in a river that you can also find in a lake?

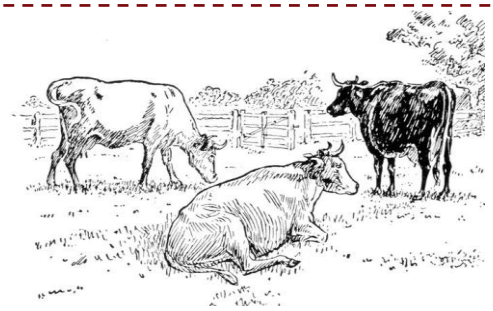
Use one of the books (titles provided above) or videos (links provided below) to reference different kind of habitats and compare them to the habitats of the Klamath Basin. For example, you could compare the marine habitat to that of the lake. You would find whales and octopus in the ocean, but not in a lake. There may be black bears in a forest, but you wouldn't find polar bears. Explain to kids that different animals fit better in different habitats. That is why they live there.

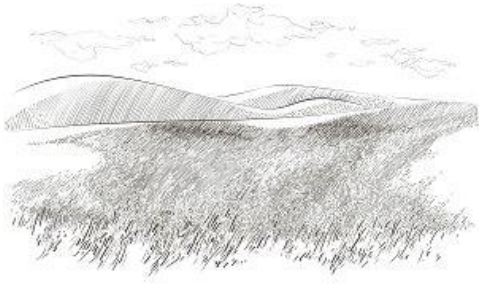
Klamath Basin Habitats

Cut out the pictures of the habitats found in the Klamath Basin. Decide if the habitat is Natural or Not Natural to the Klamath Basin. Paste them on the other paper in the correct column. (Optional: Cut and paste words or copy as well.)









Natural	Not Natural

Forest	Lake	Cropland	Pastures
Marsh	River	Grasslands	

Step One: Changes in the Klamath Basin Powerpoint

Go through the slideshow of the Timeline of Changes in the Klamath Basin. The PowerPoint has notes, but they are also provided below:

Slide 1: *We talked about how the change in the way the land was used in the Klamath Basin led to the lake becoming unhealthy. Let's learn why.*

Slide 2: *Not that long ago, the area around us was surrounded by marshes and lakes and rivers. All of these habitats are biodiverse. Biodiverse means that they have lots of different kinds of living things. These can be plants or animals.*

Slide 3: *Hundreds of thousands of birds stopped here on their migration. And there were many, many different types of animals, plants, and fish.*

Slide 4: *But people who moved here needed jobs and food. So, they drained the water from most of the land, creating agricultural land and used it to raise cattle and grow food.*

Slide 5: *This meant that most of the marshes and wetlands disappeared. That was bad because the plants in these habitats clean the water around them. And agricultural land has very low biodiversity. That means very few different types of living things are there.*

Slide 6: *Remember, the more biodiverse a habitat is, the healthier it is.*

Slide 7: *The cattle made the water dirty. So did water from the food crops. And there was less water because it was used to water the agricultural land.*

Slide 8: *Without the marshlands to clean the water, algae began to grow. And the water got dirtier and dirtier.*

cont.

Slide 9: *When the algae dies, bacteria uses oxygen to break it down. There is not enough oxygen left in the lake for the C'waam. It makes it hard to breathe, like it is hard to breathe, like during fire season when the smoke makes it hard to breathe. And the fish die without oxygen, especially the baby fish.*

Slide 10: *It's not just C'waam that have suffered. Many birds that used to stop here on their migration can't because there isn't enough food. And other fish, like redband trout can no longer thrive in the new habitat.*

Slide 11: *Plants and animals adapt to a habitat over time. They survive because the habitat is a good fit for them. If the habitat changes quickly, the plants and animals can't adapt, and they die off. That is what is happening to the C'waam in the Klamath Lake*

Slide 12: *But we can change. We can make habitats with more biodiversity. We can keep dirty water from going into the river. We can make sure the lake has enough water.*

Step 2: Changes in the Basin PowerPoint Recap

The goal here is to review the slideshow. We want students to be able to understand the order of events and their importance. Here is an example of how you could do this:

"Healthy lakes are full of diversity. In general, the more diversity there is in an ecosystem, the healthier it is. However, the diversity of the Klamath Lake has decreased drastically over the past 100 years. With the change in the way the land was used, came a change in the land itself."

"Water was drained from the Klamath Basin, to use it for agriculture. This resulted in much less water in the Klamath Lake and some lakes completely dried up. The water became dirty from cattle and drain off from crops. The wetlands that cleaned the water were replaced with agricultural land. So, the plants that used to keep the water clean were no longer there. There became less and less diversity. And the lake became unhealthy."

"There was too much blue-green algae, and not enough native plants and animals. Fish couldn't reproduce. The Klamath Basin marshes used to be a stopping point for many bird species during migration. These birds no longer stopped here. The lake water is dangerous for animals to drink. And the C'waam and Koptu are dying."

Step 3: Changes in the Basin Activity: How the Past Shapes the Future

Have copies of the timeline event pictures printed. Split the class into six teams. Each team will get an event picture and decide what their picture represents .They can write this down, or have a spokesperson remember it. When all the teams are ready, explain to the students that they are going to line up against the wall in chronological order. Use the definition from the "Vocabulary" section (if necessary) to describe what chronological means. Then have the students talk together to figure out where each team's event picture falls in the timeline.

Once the students have gotten in the correct order. Have each group's spokesperson (in chronological order) explain what is happening in their picture.

Take a moment and remind the students that just as the past has shaped our present, our present can shape our future. We need to remember that what we do will affect the world 10, 50, and 100 years from now. It is our job to make sure that we change it for the better.

Past affects present. Present can affect future!!!

Lesson 3: The C'Waam Creation Story and Ceremony

Step 1: Introduce the idea of Cultural Celebrations

Discuss the importance of celebrations in different cultures. Talk with students about how different cultures use celebrations and traditions to pass down values, hopes, and beliefs. They create **unity** in a group.

Engage the students by asking about their favorite holidays what they do to celebrate. Tell them to think about the different traditions their family has. Make sure that you reenforce the concept of safe space. Remind students that different points of view, ideas, and traditions are important. And we want to celebrate differences. Everyone gets to have an opinion, but it must be expressed with kindness and respect.

Step 2: Complete Cultural Celebrations Worksheet

Hand out the Cultural Celebrations Worksheet. Ask students to think of their favorite family celebrations or traditions. Examples may be Hanukah, Christmas, Birthdays, Halloween, etc. Then have the students fill in the worksheet. There are two levels of worksheet. The first is for students who need more help with prompts. The second is for students who can write independently.

Step 3: Explore other cultures

Take a moment and allow students to share one of their traditions and why it is important. Explain to students that their family traditions are important to them. They create unity in their family. They emphasize what is important to their family.

Explain to the students that many celebrations and traditions are rooted in the culture of a group. In Chinese culture, the Chinese New Year is very important. Family gathers together. They celebrate gods and ancestors. There are parades and traditional foods. In Latin cultures, el Día de los Muertos is a common celebration. It is a holiday where families welcome back their family that has died. They dance, eat, and celebrate with music. Holidays and traditions are a way for family and people groups to celebrate their unity. Unity is the feeling of being one with a group. The Klamath Tribes celebrate the Creator providing for them with the C'waam Ceremony.

Continued on next page.

Step 4: The C'waam Ceremony

Play from the start through 1:50 minutes of the Killing the Klamath Video. (https://www.youtube.com/watch?v=PEfZOkg5ksw or https://www.pbs.org/video/killing-the-klamath-53mgh2)

Engage the students in discussion about what the C'waam creation story means. Why are the C'Waam important to the Klamath? Why do they participate in the C'waam Ceremony?

Step 5: Activity: Comparing Personal Traditions to the C'waam Ceremony

Now we are going to link the idea of the students' personal traditions to the C'Waam Ceremony

Have the students vote for (or you can choose) a celebration or holiday from their My Family Traditions Worksheet. Using a whiteboard or large piece of paper, make a list of all of the things associated with the holiday. In the example, Christmas is used.

Now, help the students make a similar list about the C'waam Ceremony. There is a list in the example to aid you.

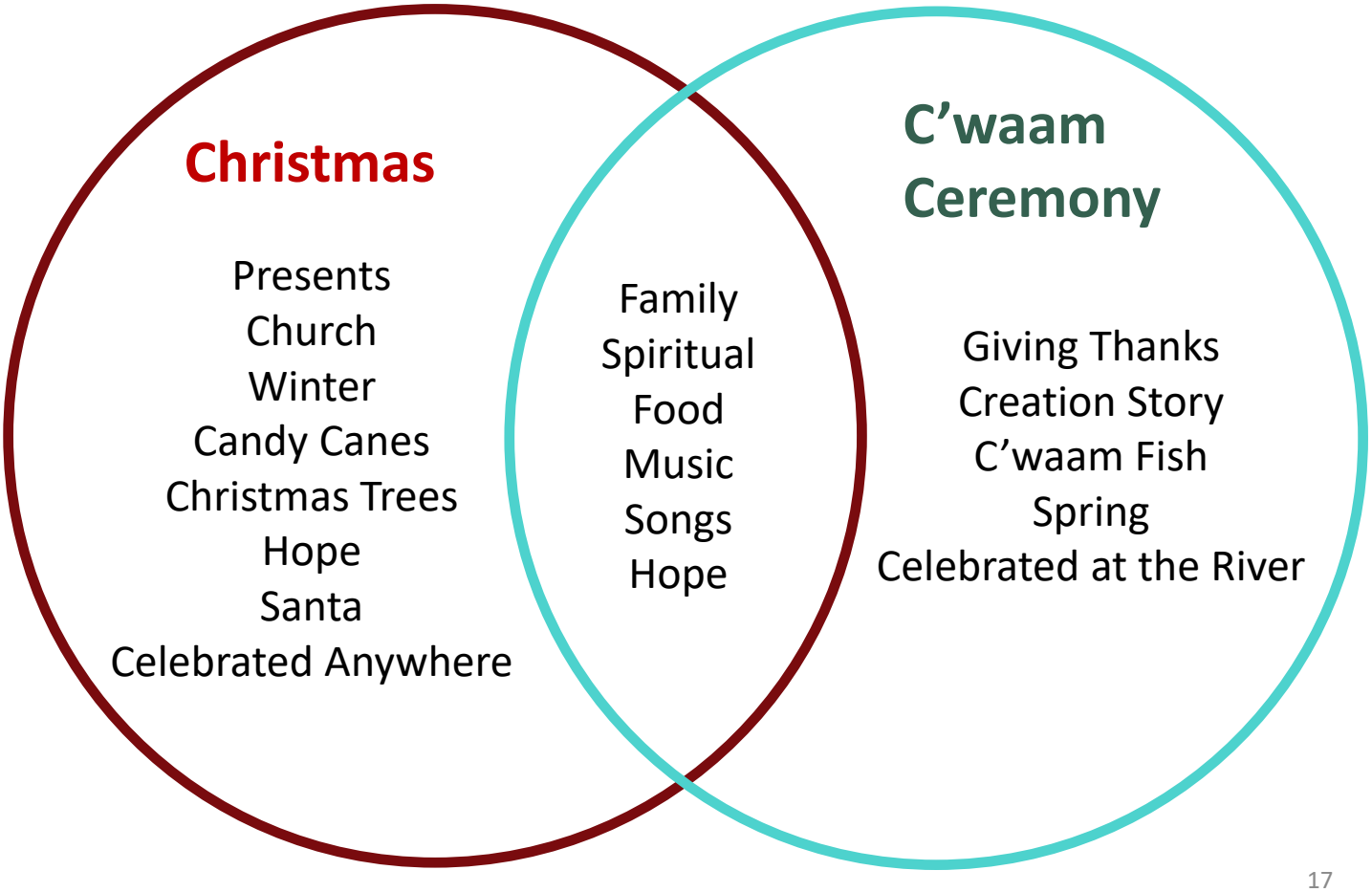
Use this information to place each item from the list into a Venn Diagram that shows how these celebrations intersect and how they are different. The following page shows an example of this.

When you are done with the Venn Diagram, take a moment to discuss with the students how cultural celebrations have things in common and differences. But almost all create a sense of unity within the people celebrating. And they all focus on an important value or belief.

Example of Lists and Venn Diagram:

Christmas
Presents
Church
Family
Happens in the Winter
Spiritual (Can be)
Food
Music
Hope
Santa
Christmas Trees
Can Be Celebrated Anywhere
People from Many Cultures

C'Waam Ceremony
Centered Around Giving Thanks
Creation Story
Family
Food
Music (Drumming)
People from Same Culture
C'waam Fish
Happens in the Beginning of Spring
Celebrated at River
Hope
Songs



My Family Traditions

Days/Things we celebrate:

1. _____

2. _____

3. _____

People who are there:

A picture of my favorite part:

What We Do:

_____

_____

_____

_____

_____

_____

_____

_____

_____

My Family Traditions

My Family Celebrates:

Let me tell you about my family traditions:

Our traditions are important because:

Step One: Explore the Solutions: The Solution to the Unhealthy Lake PowerPoint

Discuss with students that when there is a problem that matters to them, they should take action. The world needs people to take action to make it better. Tell the students that you are going to look at some possible solutions to the problem of the unhealthy lake. Scientists have developed some of the following solutions:

- *Increase the wetlands.*
- *Remove sediment from lake.*
- *Buy water rights and/or land from farmers and ranchers.*
- *Help farmers and ranchers invest in equipment that decreases water usage and drainage.*
- *Keep cattle out of the river.*

Review The Solution to the Unhealthy Lake PowerPoint. There are notes in the PowerPoint and they are provided below:

Slide 1: Let's learn what can be done to help the lake.

Slide 2: Scientists have been working very hard to solve this problem. They have come up with some solutions, or answers, to the problem. Here they are.

Slide 3: Wetlands and Marshes naturally clean dirty water. There used to be a lot and they kept the water clean. We could create more wetland refuges. This would cost money and it takes time for them to work. This is a solution that would solve the problem in the long-term.

Slide 4: There is dirt at the bottom of the lake that makes it really unhealthy. This dirt is called sediment. Removing the dirty sediment cleans the water. It costs money, but it works immediately. However, the water can become dirty again. Removing the dirty sentiment cleans the water. It costs money, but it works immediately. However, the water can become dirty again.

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Slide 5: A solution that increases the amount of water and gets cattle out of the river is to buy water rights from ranchers and farmers. If fewer people are using the water, the lake will not get as warm and will not get as dirty. This costs money. They must be willing to sell the land. But it is both a long and short-term solution. There will be more water in the lake immediately.

Slide 6: Investing money into new farming and ranching techniques will allow more water to stay in the lake and keeps dirty water from going in. This costs money. It takes cooperation from the farmers and ranchers. And it is a long-term solution.

Slide 7: By putting up fences to keep cattle away from the rivers, you keep them from making the water dirty. It is the least expensive option. This is a short and long-term solution.

Slide 8: This is a chart of the different solutions. Let's examine each solution based on specific things. The first is cost. How expensive something is will make a difference. The next is does the solution needs cooperation from ranchers and farmers? If it does, it will be harder to do. Short term solutions will help the health of the lake immediately but may not have a large effect over time. Long-term solutions help solve the problem over time but may take some time to have an effect.

Step Two: Developing a Viewpoint and Listening to Others

Divide the class into five (5) groups. Give each group one of the five solutions presented in the slideshow (Also on the Solution to the Unhealthy Lake Worksheet). Have each group discuss amongst themselves why their solution makes sense. It may help to leave the final slide from the Unhealthy Lake PowerPoint up. Have each group quickly present to the class an argument for their solution.

Step Three: Worksheet: Solution to the Unhealthy Lake

Have the students fill out the Solution to the Unhealthy Lake worksheet. They may need a quick reminder on how to use a ranking system. Perhaps list three ice cream flavors: vanilla, chocolate, and strawberry. Have them write down their favorite of those three. Under that, then write their next favorite. And finally, under that their least favorite. Now starting at the top of the list, give each flavor a number starting with 1, then 2, then 3.

Step Four: Building Consensus

Now your class is going to vote on what they think the best solution is. You can ask each student individually and tally on a whiteboard, or let the students write it down on a piece of paper and do a blind vote.

Step Five: Take Action

You can decide the most reasonable next step for your class that addresses the solution your class chose. They can either make a class video or letter to send to Oregon legislators. Additionally, they can share the information they learned with adults in their life. Or present it to another class. The goal is to take action, however that resonates with your particular students.

Solution to the Unhealthy Lake

Rank the solutions from Best (1) to Worst (5):

Rank	Solution
_____	Increase the wetlands.
_____	Remove sediment from lake.
_____	Buy water rights from farmers and ranchers.
_____	Help farmers and ranchers invest in new methods.
_____	Keep cattle out of the river.

I chose my solution because:

Additional Resources for Teachers

A River Between Us - http://www.ariverbetweenus.com

A documentary of the water crisis in the Klamath Basin. The film captures the issues at hand and key players in the crisis. It investigates the relationships that were built between the Klamath Tribes and local farmers and ranchers.

Killing the Klamath Documentary on PBS – https://www.pbs.org/video/killing-the-klamath-53mgh2/

Another documentary produced by the Klamath Tribes. This 21-minute film focuses on the crisis of the endangerment of the C'waam and Koptu fish and the effects on the Klamath people.

Klamath Tribes - https://klamathtribes.org/restoring-fish-and-a-dying-lake/

US Fish & Wildlife Services - https://www.fws.gov/nativeamerican/pdf/why-save-endangered-species.pdf

Oregon Wild Webcast - https://www.youtube.com/watch?v=C3mRJkWf_p4

Reference Materials

Habitat Videos

Generation Genius Habitats Video –
https://www.generationgenius.com/videolessons/habitats-video-for-kids/

Discovery Education UK Habitats Video –
https://www.youtube.com/watch?v=ZrSWYE37MJs

PBS Habitats: Habitat Basics Video –
https://www.pbs.org/video/habitat-habitat-basics-buxg6x/

Crash Course Habitats Video –
https://www.youtube.com/watch?v=p15IrEuhYmo

Notes

Overview of Who Makes up the Klamath Tribes

Today it is common to say that the Klamath Tribes include the Klamath and Modoc Tribes and the Yahooskin Band of Paiute Indians. But this is a *colonial simplification*.
Today's "Klamaths" were once many villages of maqlaqs (people) scattered across Upper Klamath Lake (ews), Klamath Marsh (ewkshi), the Williamson River (ya?aga), the Sprague River (plaikni goge), and others on the Wood River including: e'okak, e'ukwa'lksi, and kowac'di. The villages were distinct entities, had headmen, and were often matrilocal (husbands moving to wives' villages). Modern Klamaths refer to themselves collectively as: ewksiknii or people of the waters. Traditional foods included: lilhanks (deer), c'wam, koptu, and as many as ten other distinct varieties (of suckers), ipos (roots), meYas (trout), and c'iyaals (salmon).

Today's "Modocs" were many bands before contact with European Americans, including: Hat Creek, Hot Creek, Cumbutwas, and Lost River. Their villages surrounded Tule Lake and massive Lower Klamath Lake. The former was greatly reduced in size by encroaching Americans, who also drained the latter completely in the early 20th century for agriculture. The result is the continuing destruction of many of the Modoc bands' traditional food sources, which included: wocas (lily pod seeds), tmo (grouse), kay (rabbit), and cew (antelope). At one time, before the coming of the whites, the Modoc and Klamath were one people. They spoke different dialects of the same language—which is fundamentally different from the languages of all neighboring peoples.

Today's Yahooskin Paiutes are the Numu (people) whose traditional lands are to the east of the Klamaths and northeast of the Modocs. Their name (Yoo'hoo) comes from the Paiute word for grease, which was used by their ancestors to repel insects. Before the colonizers, their bands were pockets of families, including: Chocktoot, Paulina, and Winnemucca. Their hunting and gathering range was immense. Traditional foods include: tihikya (deer), kammi (jackrabbits), pihi (geese), toisabui (chokecherries), and tuyu (wild plums). As traditional enemies of the Klamaths, the early years on the reservation were difficult. Yainax Agency on the eastern side was established in 1870 to minimize conflicts with the Klamath. The Paiute language is wholly different from both Klamath and Modoc.
Reducing this complexity to "tribes" was a political act of the United States to facilitate treaty making. It was also a function of 19th century anthropologists' prejudices. After 140 years of living together on the same reservation, many of today's members trace their lineage to more than one of the three "tribes."

Written by Clayton Dumont, Klamath Tribes General Council -Member at Large,
Written in collaboration with Clay Chocktoot, Steve Weiser, Christine Allen, Debbie Riddle, Kya Jackson, and Buzz Kirk