



Detail from "Lewis and Clark's Camp at Traveler's Rest, Lolo Creek 1805" by Edgar S. Paxson.  
Courtesy [Missoula Art Museum](#).

**WISDOM OF THE ELDER'S RADIO: SERIES 3, PROGRAM 3  
HONORING THE NEZ PERCE TRIBE  
GRADES 9-12 \* ENVIRONMENTAL STUDIES**

*Lesson plan written by Elaine LaBonte.*

**SUBJECT AREAS**

To be defined following completion of all lesson activities

**SKILLS**

To be defined following completion of all lesson activities

**LEARNING OBJECTIVES**

After completing the lessons in this Cedar Series, students will be able to:

- *Identify the Tribes and/or ancestral homelands of the Nez Perce and to describe the cultural role that cedar has to these Tribes.*
- *Identify on a map the Columbia River, the location of the historic Lolo (sp?) Cedar Grove and discuss the historical and contemporary importance.*
- *Demonstrate familiarity with botanical terms and demonstrate an understanding of a dichotomous key.*
- *Critically examine the impact that humans have had on the environment, as well as to consider possible solutions to minimize those impacts. Students will be encouraged to consider the responsibility of individuals, communities and society as a whole, to other species, other cultures and to future generations yet to come.*

## **INTRODUCTION**

Historically, as well as pre-historically, Native Americans have defined their culture largely dependent upon the natural resources that occurred within their geographic region and environmental features found within their ancestral homelands. During the five lessons that follow, students will be provided with a worldview very different from their own. They will learn about the role of cedar in the ecosystem, as well as to the Native people who consider cedar the Tree of Life. Students will be introduced to the concept of Traditional Ecological Knowledge (TEK) and through exposure to TEK, will come to appreciate the complex scientific study that Native Americans practiced long before the current and universally accepted scientific methodology developed. Students will be introduced to botanical terms and become familiar with a dichotomous key and how the use of the dichotomous key identifies specific genus and species. Students will also learn about the diversity of uses that cedar trees provide, as well as to consider threats to cedar, the impacts of the loss, and finally examine what can be done to protect cedar groves and reflect upon what responsibility society has to the protection of ecosystems and to cultural systems and values that the larger society does not hold.

### **Overview**

- Lesson 1: Introduction to Relationships between Humans and the Environment
- Lesson 2: The Dichotomous Key
- Lesson 3: Traditional Ecological Knowledge
- Lesson 4: Responsibility of Society

## **GUIDING QUESTIONS**

## **PREPARING TO TEACH THIS LESSON**

## **SUGGESTED ACTIVITIES**

If at all possible, invite a tribal member from the Nez Perce to come and speak to the class during Lesson 3 below to discuss the role cedar plays for the tribe from their cultural perspective.

Resources include:

- The Nez Perce Tribe at <http://www.nezperce.org/content/contact/natural.html>.

Other resources for possible guests include:

- Turtle Island Storytellers: <http://www.turtleislandstorytellers.net/>

- Northwest Spirit Quest, Inc.: Elaine.nwspiritquest@dish.net

## **SUGGESTED ACTIVITIES**

### **Lesson 1: Introduction to Relationships between Humans and the Environment**

#### **Standards**

##### ENGLISH LANGUAGE ARTS

- EL.CM.RE.08—Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.
- EL.CM.WR.02—Discuss ideas for writing with classmates, teachers, and other writers, and develop drafts alone and collaboratively.

#### **Suggested Strategies**

- In preparation for this lesson you will need 3x5 post it notes; one for each student. The transcript for the *Sacred Landscape* segment, *Wisdom of the Elders Radio: Series Three – Program 3, Nez Perce* at [http://www.wisdomoftheelders.org/prog303/transcript\\_sl.htm](http://www.wisdomoftheelders.org/prog303/transcript_sl.htm) ; there is also an audio link should you not have a CD.

#### **Activities**

##### 1. Writing exercise

Give the students 10 minutes to write about their initial response to what they have just listened to.

##### 2. Discuss

Pose some questions to the classroom, such as:

- Who is the Nez Perce Tribe?
- Where are they located?
- What is Traditional Ecological Knowledge?
- Do you know what cedar trees look like?
- How many different kinds of cedar grow in the Pacific Northwest?
- Why might cedar be called the Tree of Life?
- What is a dichotomous key?
- Do you think cedar trees are in danger?

- What can we do about it?

### 3. Share

Break the students into small groups and allow them time to share their papers with each other. Within each group, have the students come up with 5 things they know or learned about the relationship between humans and cedar, and 5 questions that they would like to know about this relationship. Have each piece of knowledge and each question written separately on a post-it note. Allow time for each group to share their lists with the class and make a place where their post it notes can be placed within the classroom such as on a large piece of butcher paper. Help the students to create groups of common questions by moving the post-it notes into common groups and look at what theme(s) emerge as a result. As the themes emerge, invite students to choose which of the questions they would like to do research on and re-group the students in accordance with the question they wish to do research on.

### 4. Discuss

Discuss the scientific model of observation, formulation of questions; creation of a hypothesis; prove/disprove hypothesis (experimentation and/or research based); re-examination of hypothesis; reporting findings. Give the students time to meet within their newly formed small group to write a hypothesis based upon their question, let them discuss research strategies and assignment of tasks within their group.

## **Lesson 2: The Dichotomous Key**

### **Standards**

#### SCIENTIFIC INQUIRY

- SC.CM.SI.01—Based on observations and scientific concepts, ask questions or form hypotheses that can be answered or tested through scientific investigations.
- SC.CM.SI.02—Design a scientific investigation that provides sufficient data to answer a question or test a hypothesis.

### **Suggested Strategies**

- In preparation for today's lesson you will need cups (1 for each group of 4-5 students). Make-up a name for each cup and tape the name on the bottom. Each cup should be different, a few can be the share similar characteristics

such as color, handle, etc., but they should be different heights, different diameters, maybe one or two with writing, etc., have two different materials, i.e. plastic and glass.

## Activities

### 1. Discuss

The WOTE *Sacred Landscape* series discussed cedar as the Tree of Life for the Nez Perce Tribe. There are actually many types of cedar. Botanists are scientists that specialize in plants. There is a worldwide system of classification that identifies plants, as well as all other living organisms, into many categories including: kingdoms, families, genus and species. To identify plants, botanists use a dichotomous key. A dichotomous key uses visual characteristics that enable identification. At the beginning of the key you are given two choices, A or B. Depending upon your choice, the key will tell you where to go for your next level or division of characteristics, where you are presented with two additional choices.

### 2. Analyze

Break your class into groups of 4 or 5 students.

Give each group a cup. Tell the class they are going to make a dichotomous key for the cups.

Walk the students through the process.

Ask, what is a defining characteristic that will separate these cups into two categories?

Their answer(s) will depend upon the cups. A good beginning point would be plastic and glass. For example:

1. a. Cup is made of plastic, go to 2.  
b. Cup is made of glass, go to 10 (arbitrary number, the number will depend upon how many levels of division the groups determine).
2. a. Cup is a characteristic that separates the plastic cups. Go to 3.  
b. Cup has a defining characteristic that no other cup has. Name the cup.
3. a. Cup is a characteristic that separates the plastic cups. (i.e. cup has handle)  
b. Cup does not have above named characteristic, go to 4.

And so on until each cup has been named.

Now have each group exchange dichotomous keys and see if they can identify all of the cups. If all cups cannot be identified, look at the process to ensure that each group understands a dichotomous key and the choices that need to present, based upon visible characteristics. Encourage measurements as a choice, i.e., cup is 6" tall; cup is 8-10 inches tall (if you have two cups within that description).

Now that the class has successfully created and used a dichotomous key, tell the class they are going to make a dichotomous key for 4 species of cedar.

When using a dichotomous key, botanists look at several identifying characteristics. These are usually based upon flower formation; fruit type; leaf formation and pattern of growth; root type, bark type (if woody shrub or tree) as well as looking at the habitat in which the plant is occurring. The cedar dichotomous key will have most of these characteristics. Keep the students in their groups.

### 3. Writing exercise

As you describe cedar have your students take notes; they will need this information to make their dichotomous key. Print-out the information on the table below and give one to each group.

	<i>Thuja plicata</i> (Western Red Cedar)	<i>Calocedrus decurrens</i> (Incense cedar)	<i>Chamaecyparis lawsoniana</i> (Port Orford cedar)	<i>Chamaecyparis nootkatensis</i> (Alaska cedar)
Leaves	1/16-1/8" long, scale-like, opposite pairs; scales flattened; white stomatal pattern on lower surface resembles a butterfly or bowtie.	1/4-1/2" long, yellow-green, leaf pattern forms wine-glass.	1/16-1/8" long; opposite pairs; stomatal pattern has a white "x" on underside.	gray-green to blue-green; no white stomatal pattern.
Cones	1/2" long, 10 -12 scales	3/4-1 1/4" long, yellowish-brown, looks like 3 scales, but actually 6	6-8 wrinkled scales' round	4-6 scales, round, 1/4-1/3" long;
Twigs	Younger ones flattened, older ones round, slender slightly zigzag, reddish-brown in color	At first flattened but become round; reddish-brown to grayish-brown	New twigs distinctly flattened; older branches round with thin brown bark.	Younger twigs flattened, older branches round.

Bark	1/2-3/4" thick; fibrous, brown, outer bark breaks up into long narrow strips	Purplish-red; 3-4" thick near the base thinner at the top	Brown, 4-8" thick at base, thinner at top	Thin, reddish to cinnamon-brown
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#### 4. Homework

Have each group make a dichotomous key for the 4 species of cedar presented. A dichotomous key can be based upon whatever characteristics help to define the species. Each species has one or more traits that help to distinguish from other species.

### **Lesson 3: Traditional Ecological Knowledge**

#### **Standards**

##### ENGLISH LANGUAGE ARTS

- EL.CM.RE.02—Listen to, read, and understand a wide variety of informational and narrative text.
- EL.CM.RE.04—Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.
- EL.CM.RE.35—Extend ideas presented in primary or secondary sources through original analysis, evaluation, and elaboration.
- EL.CM.SL.10—Formulate judgments about ideas under discussion, and support those judgments with convincing evidence.

##### GEOGRAPHY

- SS.CM.GE.03—Locate and identify places, regions, and geographic features that have played prominent roles in historical or contemporary issues and events.
- SS.CM.GE.06—Analyze and evaluate the impact of economic, cultural or environmental factors that result in changes to population of cities, countries, or regions.

##### SOCIAL SCIENCE ANALYSIS

- SS.CM.SA.01—Define, research, and explain an event, issue, problem, or phenomenon and its significance to society.
- SS.CM.SA.02—Gather, analyze, use, and document information from various sources, distinguishing facts, opinions, inferences, biases, stereotypes, and persuasive appeals.

## Suggested Strategies

- In preparation for this lesson, go to [http://www.nps.gov/history/museum/exhibits/nepe/exb/dailylife/FoodGathering/NEPE34212\\_Basket.html](http://www.nps.gov/history/museum/exhibits/nepe/exb/dailylife/FoodGathering/NEPE34212_Basket.html) and print out this cedar basket; go to the following site and print-out location of the Nez Perce Reservation: <http://www.nezperce.org/RezInfo/NPreservation.htm>; and also print out these other maps which show ceded lands and changes in Reservation size: [http://www.nww.usace.army.mil/dworshak/reports/final\\_eis/map6.jpg](http://www.nww.usace.army.mil/dworshak/reports/final_eis/map6.jpg); <http://images.google.com/imgres?imgurl=http://www.windriverhistory.org/exhibits/chiefjoseph/images/p159map.jpg&imgrefurl=http://www.windriverhistory.org/exhibits/chiefjoseph/chiefjoseph02.htm&h=378&w=450&sz=43&hl=en&start=16&sig2=20BQDR9yrg81mUKp3LLfGw&um=1&tbnid=w1qrPsqlUSzw7M:&tbnh=107&tbnw=127&ei=p8F1RqrhD6jaiQHZ9pGaBw&prev=/images%3Fq%3Dnez%2Bperce%2Btribe%2Breservation%2Bmap%26svnum%3D10%26um%3D1%26hl%3Den%26rls%3DTS HB,TSHB:2007-06,TSHB:en>.

## Activities

### 1. Share

Before you begin today's lesson on Traditional Ecological Knowledge, have the class share their dichotomous keys with one other student; have the student write out a paragraph on the effectiveness of the dichotomous key; have both the key and the students' assessments turned in. If you wish, have a class discussion on this activity.

### 2. Discuss

Ask the students if they think the ancestors of the Nez Perce Tribe knew that different kinds of cedar existed?

The structure of tribes was very specific. While some tribes had families that passed down the knowledge on a particular subject and kept the knowledge within their own family, that family had the responsibility for sharing the information with all of the Tribe. Within those specialties, generally, women had their own roles, men had their own roles and responsibilities, children had their own roles, Elders had their own roles, etc.

Recall that scientists have agreed to a classification system for living organisms so that a person could go to any country, regardless of the language spoken and use a dichotomous key to identify living organisms. The names never change, the only exception being in the discovery of

characteristics of a given organism that show a misclassification (these cases are rare and are subject to many experts in the field agreeing to the same).

Ask the students if they think that common names, i.e., incense cedar, is recognizable in other countries in the same way that the agreed upon classification and names used for flora and fauna are recognizable.

The answer to that question is absolutely not. The use of common names is difficult as they are usually common in a specific area. For instance, dependent upon the area you live in, if you could think of a plant that is recognizable by its common name, this would be a good example to talk to the class about.

Classification systems are often considered a trait of being human; that the nature of humans is to classify or group things into similar categories. The study of ethnobotany or ethnobiology looks at classification systems of various groups of people both historically and contemporarily. Native people generally use a classification system based upon use of a plant whereas today's botanists use a classification system based upon characteristics of a plant. Therefore, plants are classified based upon the use of the plant within most native societies. Let's go back to our 4 cedar species in our dichotomous key.

Recall the WOTE *Sacred Landscape* segment and how cedar was discussed in terms of use. Ask if anyone remembers any of the uses that were discussed.

Within the segment, basket making, medicines, houses, canoes, feast bowls, food-storage boxes, hats, capes, dresses and skirts, and spiritual uses were mentioned. This list is by no means comprehensive, but it gives the class a good idea of the versatility of the cedar.

### 3. Research

Have the students get into their research group and have them classify the cedar into groupings according to use.

Give them the following information:

- Bark is used for basket weaving, hats, capes, dresses and skirts
- Roots are used for basket weaving and medicines
- Wood is used for houses, canoes, feast bowls, food-storage boxes and fuel
- Cedar boughs are used for houses, shading, spiritual uses such as cleansing, smoke is used as an insecticide.

There is no “right” answer. This is an exercise in further classification, as well as a comparison in a native methodology and a more “scientific” approach. Give the groups a chance to share their classification system and to discuss the two approaches.

Botanists use books called floras which can be based upon a specific area, i.e. the Cascade Mountains, or a more comprehensive one based upon a particular ecosystem, a State, a country, etc. There are volumes of such floras depending upon the degree of division that is presented. (Should you have access to a flora bring one in for the class to look at).

Ask the class how did native people share the classification of resources?

There was no formal classification system that was shared in any manner similar to a flora. Language was the key. The kind of cedar used for making capes and hats had a specific name. The roots used for basket weaving had a separate name than the roots used for medicines. Ask if anyone has heard of the people in Alaska who have over 30 names for snow? This is a similar idea in that the language described the classification system.

Now introduce the concept of Traditional Ecological Knowledge (TEK). TEK has many definitions, essentially TEK can be understood by the students by familiarizing themselves with the Tribe(s) and their original homelands. Tribal entities pre-European contact had very defined area of lands that generation after generation lived upon and were dependent upon for survival. Much like current scientific methodology, native people:

- Made observations on a given ecosystem;
- Made hypothesis based upon these observations;
- Through experimentation either proved or disproved the hypothesis;
- Changed methods of gathering, harvesting, hunting, fishing, etc. based upon the results of their experiments;
- Through their oral traditions reported the findings to the next generation.

TEK is the sum of thousands of years of “scientific study”. More and more so, TEK is becoming recognizable as a viable means with which environmental problems can be solved or another way of looking at an issue. Many Ph.D. students do research on environmental issues and within their results confirm what native people in a given area already knew via the large body of TEK that exists within a given tribal group.

#### 4. Read

Hand out the Treaty of 1855, bringing the students attention to Article 1 which describes the lands that the tribe ceded. Article 2 describes the area of ceded lands that would be reserved for the establishment of a Reservation

and Article 3 specifically reserved the right of the native people to continue to hunt, fish and gather resources in their “usual and accustomed” areas. This Article would become extremely important in more contemporary times in the use and management of natural resources important to the tribes.

## 5. Mapping exercise

Pass out the maps. The Nez Perce Tribe lived in villages and bands of people, sharing a common culture and a common language though there were dialect differences. The homelands of the tribe include north central Idaho, southeastern Washington, and northeastern Oregon. Point out the large area of land that was considered “usual and accustomed” areas which included all of the homelands plus parts of western Montana and Wyoming. The original territory was over 17 million acres (27 thousand square miles and it included the Clearwater River Basin, the South and Middle forks of the Salmon River Basin and their tributaries. The original Reservation established by the 1855 Treaty was 7.5 million acres. In 1860 gold was discovered on the Nez Perce Reservation. This discovery created hostilities and the miners wanted more land available to them. In 1863 a new treaty was drawn up and signed; the size of the Reservation was decreased from 7.5 million acres to 750,000 acres. The current Nez Perce Reservation is located in north central Idaho and remains approximately 750,000 acres.

The basic lifeways of the Nez Perce people was one that scholars call “nomadic”; the Tribe disputes the terminology stating, “In the Webster's Collegiate Dictionary it states under nomadic, “roaming about from place to place aimlessly, frequently, or without a fixed pattern of movement.” The Nimi'ipuu people were not nomadic, they did travel with the seasons to pre-determined areas”, from Nez Perce website.

Like many tribes did, the Nez Perce people did have a seasonal round of travel. Their homelands included rivers, mountains and prairies. Beginning in the Spring, travel would begin. The lower valleys held the roots used for foods and medicines while the rivers held the first runs of salmon and other fish. In the later summer, berries became ripe, and the travel would extend up into the mountains to favored berry picking spots and additional root gathering; hunting also took place during this time, as did fishing and winter storage preparation. Some of the primary foods relied upon include salmon and other fish, animals such as deer, elk, moose, bear, mountain sheep and goats. In later years (after the 16<sup>th</sup> century) buffalo and antelope was hunted as well, roots such as camas, bitterroot, khouse, wild carrot, wild potato, and other roots, berries including service berries, gooseberries, hawthorn berries, huckleberries, currants, elderberries, chokecherries, raspberries and strawberries; fowl such as ducks, geese and grouse.

Recall that the Nez Perce Tribe lived in villages and bands along the streams and rivers of their homelands. The winter houses consisted of a long house made of wood and covered with tule (a plant) mats. These long houses were as long as 100 feet and were subterranean, meaning they were partially dug-out of the ground. Many families would live in one of these houses; ceremonies were also held in these houses. Less extensive housing would be erected as temporary shelter during the times of travel as needed and based upon what was available in the area. After the 16<sup>th</sup> century tipis became popular and were used more often than the long houses.

The ruling of the tribe (pre-reservation times) was based upon the villages and bands of the Nez Perce. Each band had its own homeland or territory. Within a given band, there would be several villages situated within their designated territory. As with many tribes, their names were place-names, often being associated with the name of the river or stream they were living near. Each village had a leader, generally an Elder of the village – often times these were hereditary positions. Larger villages had various Chiefs in addition to their leader. These villages came together with each other within their band; the bands would get together as well depending upon need, trade, ceremony, etc.

The original homelands were over 17 million acres of land and according to the Tribe, the Nimi'ipuu people have lived in these lands since “time immemorial”; the archaeological evidence suggests that there has been a presence in these homelands for at least 11,000 years.

Ask the class, what happened in the 16<sup>th</sup> century that caused tipis to become popular and buffalo and antelope added to the list of foods?

The Spanish introduced horses during this time. The Nez Perce people became very skilled horsemen as well as horse breeders. The horse gave the people the ability to travel outside of the usual areas where they were able to hunt buffalo and antelope. Additionally, the ability to communicate with Tribes to the east caused communication to open up and shared knowledge such as the use and building of tipis, clothing, etc. occurred.

Ask the class, based upon the size of the homelands and the length of time that the Nez Perce people have been there, do you think that a body of Traditional Ecological Knowledge exists?

## 6. Research

At this time let the students know that a guest speaker will be coming to the class and encourage the groups to think about questions that they may ask the speaker in preparation for their research project. Alternatively, let the students know that the next class period will be devoted to giving the students

time in the library to do research; give each group time to do research on the internet including the Nez Perce Tribe website at <http://www.nezperce.org/content/index.html> and the Columbia River Inter-Tribal Fish Commission <http://www.critfc.org/> . If any of the groups are researching Traditional Ecological Knowledge; good places to start include <http://www.ser.org/iprn/tek.asp>, the Indigenous Peoples' Restoration Network homepage; <http://www.carc.org/pubs/v20no1/utility.htm>, which contains information on Traditional Ecological Knowledge (TEK); and <http://www.ienearth.org/>, the Indigenous Environmental Network homepage.

## **Lesson 4: Responsibility of Society**

### **Standards**

#### ENGLISH LANGUAGE ARTS

- EL.CM.RE.02—Listen to, read, and understand a wide variety of informational and narrative text.
- EL.CM.RE.04—Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.
- EL.CM.RE.08—Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.
- EL.CM.SL.05—Analyze the occasion and the interests of the audience, and choose effective verbal techniques and language.
- EL.CM.SL.10—Formulate judgments about ideas under discussion, and support those judgments with convincing evidence.

### **Suggested Strategies**

#### **Activities**

##### 1. Listen

We have learned about the importance of cedar to the Nez Perce people. We have learned how to identify various cedar species. Listen to the *Sacred Landscape* segment again.

##### 2. Discuss

Ask, what have we not covered with regard to the cedar description that Judy BlueHorse-Skelton discussed in this CD?

There may be many things the class comes up with. The marking of the cedar trees is the final component of this lesson.

Ask, why were some of the trees marked?

They were going to be logged. The good news is that individual trees were marked as opposed to the entire forest. Clearcutting, the removal off all trees, shrubs and living organisms is becoming less popular.

Ask, why do we need to log trees?

There are several answers that the students can come up with.

### 3. Art project

Break the students into groups. Have each group think about logging and create a poster about something they can do to reduce the need for logging.

As the only clue to this activity (if they need one), the 3 R's: reduce, reuse, recycle.

Have each group share their poster with the class.

### 4. Discuss

Ask the question, is it important that cedar trees are culturally important to the Nez Perce Tribe?

Have each group discuss them amongst themselves and allow them time to prepare their final presentation.

Each presentation should include:

- Introduction of their subject and its connection to the Nez Perce Tribe;
- Nez Perce tribal homelands
- Research topic and findings

## **Days 2, 3, 4**

### 1. Report

Portfolios are turned in. Have each group present their findings to the class with a 15-minute time limit and 5 minutes for questions.

### 2. Listen

Wrap-up this series of lessons by re-listening to the *Sacred Landscape* segment. Give time for students to express changes in what they have listened to.