ELA Common Core Content Standards:
Reading Standards for Literature 1
Reading Standards: Foundational Skills 3, 4
Writing Standards 1, 8
Speaking and Listening Standards 1, 2, 6
Language Standards 1, 2, 4, 6

Estimated duration: 2 sessions, 1 hour each

Goal: Students will gain an understanding of how the diet and culinary values of people are connected to place, and learn about the many Native foods that were and are still used by California Indians. Many aspects of harvest, processing, and managing for Native plants that have been addressed in previous lessons will be revisited in a broader scope that includes many other California tribes.

Teacher Background: Since time immemorial, the Klamath River and its many tributaries and surrounding landscapes have shaped and, in fact, define the cultural units of the indigenous peoples of this region, of which the Karuk number. Ethnographer A.D. Smith contends that indigenous groups continually inhabiting an area develop an intimate connection to this territory, and that populations - through their "ceaseless encounter with a particular environment"[1] - are shaped by the geography of their environment. Moreover, the use of that environment defines their sense of who they are.

Traditional Ecological Knowledge of indigenous peoples is built almost solely on the natural and social sciences that support a thriving Native food system. Ceremonial practices, legal and moral constraints, oral traditions, artist expressions, and the socialization mechanisms of the tribal community all contribute fundamentally to the delicate balance of a healthy eco-system, of a thriving people together with their animate and inanimate relations.

Theme/Big Idea:	The diet of indigenous Peoples is place-based
Big Question:	How do we protect and preserve cultural foods?
Vocabulary:	ecological disturbance, testimony, millennia, forb, forage, rosette, marrow, larva, pupa, herbaceous, chaparral

[1] Smith, A.D. (1986). The Ethnic Origins of Nations (Wiley-Blackwell), p. 183

Materials:

California's Ancient Cornucopia, by M. Kat Anderson and Jennifer House (2012). Adapted with permission from the authors for this lesson (included)

Vocabulary Worksheet (included)

Seasonal Menus Worksheet (included)

Local Heroes: Phoebe Maddox, (included)

Preparation: Pre-read the lesson text and made copies of both for each student. Copy the Seasonal Menu and Vocabulary Worksheets for each student.

Discussion Circle: Tell students that we live in a place that was inhabited by indigenous people long before white explorers and settlers came to this area. It is a very special place on earth, and it has shaped the language, diet, physical attributes and culture of these peoples, as well as the resources and landscapes surrounding them. Remind the students that indigenous means someone or something produced, living, or existing naturally in a particular region or environment (see Grade 2, Lesson 2). Ask students if they ever wondered why Africans like to eat the food they do, and why some cultures eat things that we don't. Ask them if they know people from different countries, and if they eat differently.

Preparing to Read: Tell the class that the text they will read for this lesson is about a large variety of foods that indigenous people from all over the present-day state of California used to eat, and still do to some extent. Tell them that the original text has been adapted for this grade level, yet there are a number of words that they might not recognize. You may have to remind them that an anthropologist is a scientist who studies human races, origins, societies and cultures.

Developing Vocabulary: Have the students complete the worksheet. Answers are as follows: 1. pupa, 2. chaparral, 3. marrow, 4. forage, 5. millennia, 6. ecological disturbance, 7. testimony, 8. rosette, 9. larve, 10. herbaceous, 11. forb

Reading Activity: Have students take turns reading this extensive, yet informative text.

Discussion: Lead the students in a discussion of this text, asking them if they learned something, and what kind of food they would be most interested in trying.

Activity: Divide the class into groups and assign them the Seasonal Menus Worksheet, giving each group one season for which they will design a menu for one day's food. Have each group present their menus to the class, and have students evaluate their meals for nutritional balance and seasonal relevance.

Reading Activity: Have students read the **Local Heroes** article about Phoebe Maddox. When they are finished, ask them if they think it was good for her to have told academic researchers about the Karuk culture and language. Encourage different viewpoints and ask them to qualify their statements. Remind them that the text on pine nuts was recorded from J.P. Harrington's interview with her.

Name_____

Vocabulary

Choose a word from the vocabulary bank that best completes each sentence and write it on the line. You may have to change the word's form to match the correct part of speech.

ecological disturbance, testimony, millennia, forb, forage, rosette, marrow, larva, pupa, herbaceous, chaparral

1. A _____ is an insect that is in the stage of development between larva and adult.
2. An area of dry land, especially in southern California, that is covered with bushes and short trees is called _____.
3. The _____ is the soft substance that fills the bones of people and animals.
4. Grasses and other plants that are eaten by animals is called _____. This word is also used as a verb to describe the process of eating by animals.
5. More than one period of 1,000 years is called _____.
6. A change in the position, arrangement, or order of something in the environment is called _____.
7. A _____ is something that someone says.
8. When something has the design or appearance of a rose, it can be called a _____.
9. A _____ is a very young form of an insect that looks like a worm.
10. Something is _____ when it relates to a type of plant that has a soft stem.
11. A _____ is a type of flowering plant that is not a grass.

California's Ancient Cornucopia

M. Kat Anderson and Jennifer House, December 10, 2012, adapted and supplemented for this lesson

A Story of Abundance, Diversity, and Indigenous Stewardship.

The diverse, seasonal foods of California's first peoples came directly from the land they nurtured, which nurtured them in turn. This diversity included plant foods such as acorns, wildflower seed crops, grains, underground plant parts, fruits, berries and greens; animal foods from various mammals, fish, fowl and insects; and fungi, seaweeds and shellfish added even more variety. Plant and animal parts were regularly dried for storage and eaten in the off-seasons, but much food was seasonal and eaten right then and there for its goodness.

Lucy Thompson, a Yurok woman from northwestern California, wrote in 1916: "My people were in the habit of eating but two meals a day. . . the menu differing according to the season of the year." With a great assortment of available foods, California's indigenous people had diets that were generally secure and exceptionally nutritious.

Early written descriptions of California tribes describe the excellent health of these indigenous peoples. Journalists, anthropologists and non-Indian settlers noted their strong and lean bodies, as well as their "sweet breath and beautiful white teeth." They ate a great variety of foods that they cultivated in their environment. Early white settlers recognized the amazing abundance of foods they found in California, describing it as "an overflowing store," but generally did not understand that it was linked to the Indian's management of landscape. But the consistent experience and testimonies of California's first peoples, as well as the work of investigators and scholars, confirms that the variety and quality of these foods was a direct result of generations of California Indians caring for the land and its resources over millennia. California's native peoples enhanced and intensified their food resources with the culturally supported land management practices that made the California landscape so impressive to early European explorers and settlers.

Today California Indians still care for the land, harvest and process many California plants in traditional ways, and hunt, fish and gather seaweeds, but their opportunity to practice their traditions is not what it was before their relationship with their life-giving land was interrupted by European settlement. And yet Indian people and their lifeways continue to endure, offering wisdom to a world in need of direction. This article explores the variety of foods eaten in native California, describes techniques used to enhance these food sources, looks at how the quality of these foods is connected to the ways in which the California Indians cared for their land.

LIVING ON THE LAND: THE INDIGENOUS DIET

C. Hart Merriam, a biologist who spent much time among the tribes of California between 1900 and 1937, commented on "their superior knowledge of the food, textile and medicinal values of animals and plants" in their landscapes. At the time of European contact, over a thousand species of plants were actively utilized in California, with each tribe incorporating over two hundred different species of

plants, animals and fungi into its meals, making up particular meals unique to each cultural group. Indian names for plants commonly recognized their characteristics, habitat, or use.

It was commonplace for adults and children, as they went about their daily lives or walked along a trail, to pick knowledgeably handfuls of leaves or berries to eat, nibbling on a diversity of wild foods, participating in the landscape. Native people would travel, often for the explicit purpose of getting something particular to eat—experiencing the first appearance of a favored green, the gathering of geese or great flights of pigeons, the maturing of grains on native grasses or the fall run of fish.

PLANT FOODS IN MANAGED LANDSCAPES

Various parts of native plants—fruits, seeds, leaves, stems, mushrooms — provided a large portion of the diet for California tribes. Plants were cared for with vegetation management practices, many of which were managed forms of ecological disturbance, imitating the disturbance present in natural systems. Techniques such as pruning, knocking, protecting, weeding, digging, tilling, transplanting, watering and burning resulted in beneficial changes in plant and animal abundance, ecosystem and species diversity, growth, longevity, productivity and food quality.[2]

ACORNS

Especially valued were California's numerous species of oaks and their acorns. Oak trees were cared for in multiple ways. It was common practice to harvest the acorns in autumn before they fell by climbing the trees and pruning the limbs, or by knocking them with long stout poles especially grown for this purpose in managed groves. It was understood that these activities were good for the trees, removing dead wood, protecting the tree and stimulating growth. Melba Beecher, Mono, says, "Knocking wakes the tree up. It alerts the tree to bear more." The nutrient-dense acorn is high in protein and fat, and requires processing through leaching to reduce bitter tannins before eating. Processing acorns was an activity that lasted throughout the year, making this a daily staple food.

Setting low-intensity fires in oak landscapes under and between the trees was probably the most widespread Indian management technique for caring for the oaks and the land. This regular burning suppressed disease and especially helped to control insect infestations of acorns. The burns also stimulated the production of sprouts for the making of cultural items, reduced brush which decreased the risk of major conflagrations that could harm the oaks, encouraged the growth of edible mushrooms, increased edible forbs and grasses between and under the oaks, and increased forage for wildlife.[3] In supporting and caring for the oaks, California Indians cared for the life of the ecosystem as a whole.

Figure 1. California Indians knocked oak trees with long poles to cause the acorns to release to the ground. Knocking removed dead wood, controlled diseases, and renewed fruitwood.

NUTS, SEEDS AND GRAINS

In addition to acorns, buckeye nuts and pinenuts, the grains of many native grasses and seeds of wildflowers were managed and harvested by tribes; they were eaten parched or made into cakes, bread, mush or soup. Modern wildflower enthusiasts who travel to see the spring wildflower blooms in such places as the Carrizo Plains in southeastern San Luis Obispo County may not realize that such vast displays of color were common throughout California before European contact, and were actively managed as vast seed-bearing areas by the local tribes through such practices as seed beating, sowing and burning. S eed beating is seed harvest using a seed beater, a woven cupped paddle, to beat against the maturing plants, sweeping the seeds into a burden basket. In the process, some seeds fall down to the ground or up into the wind and thus are dispersed, which made new plants in the coming years. Many types of grains were harvested in the spring and fall, and eaten as long as their stores lasted.

Figure 2. Light and frequent fires set between the oaks reduced acorn insect predators and diseases, and kept down fuel loads to prevent a catastrophic fire from destroying the trees.

INDIAN POTATOES

Bulbs, corms and tubers were dug by California Indians with digging sticks. The Indian harvest of these plants loosened and aerated the soil, divided the plants' underground storage parts and left behind small corms, bulbs or fragments in the soil, stimulating regrowth. These plants, which grew densely under Indian management, were seen by early white settlers as growing naturally in beds and came to be called Indian potatoes, which are harvesting in the spring and fall. They were gathered in great quantities by the Indians and eaten raw, boiled or baked in an earth oven. The gathering knowledge for these subterranean foods was complex and extensive. Lois Conner, North Fork Mono/Chukchansi, remembers what her Aunt Rosalie taught her: "Dig soaproot after the plants go to seed and leave the roots behind. If you break them off, they will grow back again."

Figure 3. Harvesting edible Indian potatoes with a digging stick aerated the soil and prepared the seedbed.

GREENS

The leaves, stems, buds and young sprouts of a great variety of herbaceous plants were eaten raw, often in the field in the spring, or stone-boiled in a basket, steamed as pot-herbs in an earth oven, or dried and stored for later use. Indian lettuce (*Claytonia perfoliata* and *Monia sibirica*), the stems of the sour-tasting tibinaua (*Eriogonum nudum*), peas (*Lathyrus graminifolius*), the young tops of angelica roots (*Osmorrhiza nuda var. brevipes*, Karuk **kishvuuf**) and other roots (*Angelica tomentosa)*, swamp greens (*Sanicula bipinnata*), the stems of sunflowers (*Crepis acuminate)*, and the young rosettes of fiddleneck (*Amsinckia*) are just some examples; the Sierra Miwok alone used forty-eight distinct varieties of greens. Native people today remember that edible greens were not "naturally" productive continuously, over many years, but required burning to maintain their quality and quantity each year.

FRUITS

Many native fleshy fruits and berries were available to California Indians and these plants responded to their management; early photographs show large, concentrated patches of accessible berries from which one could gather much fruit in a short time. Such fleshy fruits or berries were gathered in substantial quantities in the late spring and early summer, and often dried and stored for winter use. Fruits such as huckleberries (*Vaccinium*), gooseberry (*Ribes*), sourberry (*Rhus trilobata*), wild strawberries (*Fragaria*), blackberries, thimbleberries, blackcap raspberries (*Rubus*), and holly leaf cherry (*Prunus ilicifolia*) were gathered. In the fall, elderberry (*Sambucus mexicana*), wild grape (*Vitis californica*), and many others were valued. The medicinal values of these fruits—the elderberry for example—"were well known to our ancestors," writes Rhonda Robles, Ajachmem.[4]

Fruits are used to make beverages such as the sour fizzy drink made from sourberry favored by the Sierra Miwok in the hot weather of summer. The drink with the most widespread use, still popular today, is made from crushed manzanita fruit. Thomas Jefferson Mayfield, writing of his youth with the Choinumne in the 1850s, says, "A sweet cider was made from the juice of the manzanita berries. They were crushed in mortars and set to drain into baskets. A little water was added to the crushed berries. This made a sweet and well-flavored cider, and I remember it with more relish than anything I ever ate or drank with the Indians."[1] With over fifty species of manzanita native to California's varied landscape, tribes had their own favored local ciders, each reflecting its own particular land and soil.

FUNGI

Throughout the year mushrooms provided an important accompaniment to acorn, venison, elk-meat, fish and other dishes. Some California tribes gathered at least nine or ten different kinds, considering them a staple food. Varieties included chanterelles (gathered in the early fall), morels (mainly in the spring), boletes, corals, puffballs and other soil-growing fungi. Others, such as willow or oyster mushrooms and giant sawtooths, were cut or torn from the trunks or branches of live and dead trees and then dried in large quantities.

ANIMAL FOODS IN MANAGED LANDSCAPES

Animal foods were an essential part of the diet for California's first peoples; the diversity of animal foods incorporated into this diet again reflects an in-depth knowledge of and participation in the landscape. As native peoples managed their landscapes for the plants they valued, they were also managing for the benefit of animals. Indian-set fires increased forage available for large grazing animals. Karuk elder Georgia Orcutt told anthropologist Edward Gifford in 1940 that the scarcity of deer in the Orleans area of northwestern California then was due to the lack of fires, which formerly burned brush and encouraged the growth of grass. Studies have shown that with pruning or burning, numbers of larger game animals increase.

MAMMALS

Large mammals that were hunted for their meat included tule and Roosevelt elk, pronghorn antelope, black bears, black-tailed and mule deer, sea lions, seals, whales and mountain sheep. Organ meats—such as the livers, kidneys, lungs, small intestines and hearts of deer—were widely eaten and valued. To the Miwok of the Sierra Nevada, the liver of mule deer was considered a delicacy.[5] The Shasta and other tribes made a blood pudding by filling the large intestine of a deer with blood and fat and cooking it in ashes.[6] The Atsugewi, Coast Yuki and other tribes broke up the long bones of deer and scraped out and ate the marrow raw; the Lassik of the Mt. Lassen National Park region sought out the marrow from the bones of bears.[7] Some tribes ground up the bones of deer and salmon and combined them with various plant products to create a hash or stored the pulverized bones for making soup in the winter. The vertebrae of deer were pounded and made into little cakes and baked. The old people especially drank the broth of deer meat or salmon. Oil retrieved from deer, bear, whale, seal and sea lion was preserved and warmed for eating with dried berries.[8]

Small mammals, such as porcupines, marmots, pine martins, cottontail and jack rabbits, chipmunks, raccoons, gray and ground squirrels, opossums, beavers and wood rats were often tenderized with pounding and then roasted, bones included. In 1935 anthropologist Cora Dubois described how the Wintu in northern California generally cooked small game: "It was singed, the paws and tail were cut off, and the entrails removed. The animal was then roasted in a bed of hot coals. Then the hide might or might not be removed. The head was cut off and the ribs extracted along with the other large bones. The body was then pounded, bones and all, until it was fine and crumbly."

BIRDS AND REPTILES

Many kinds of birds were eaten including mourning doves, band-tailed pigeons, gulls, grebes, blue grouse, mud hens, sage hens, quail, sandhill cranes and a great variety of ducks and geese. The late Felix Icho, Wukchumni, described how to cook quail: "We used to make a soup out of quail. You pull the feathers off. Dip the bird in water and the feathers come off better. Then cut the bird open and gut it. We roasted it in live oak ashes—when the ashes turn red you put the bird in the fire."

Reptiles such as certain kinds of lizards, desert tortoises, snakes and western pond turtles were also eaten – mainly in the summer.

INSECTS

Invertebrates were gathered and eaten— grasshoppers, the pupa and larva of moths and butterflies, the larva of yellow jackets and adult June beetles. Cooked yellow jacket larvae are described as tasting like sweet corn. Roasted grasshoppers mixed with grain or acorns were a particular favorite. The late Pauline Conner, North Fork Mono/Chukchansi, described harvesting, preparing and eating the pupa of the California tortoiseshell butterfly: "I remember gathering huuya.ʹ We got them by the bucketfuls. They're upside down on a string hanging on a twig of chaparral. Grandma Lily would whistle and the huuyaʹ would shake and then you'd grab them. They pop in your mouth when you bite them—kind of crunchy. They kind of tasted like peanuts. They're delicious—I love them. T hey let them dry. They rinse them to get the dust off. They put them in a pot with water just to cover them and let them boil. If you can stick a fork through their bodies, they're done. If I could just have a pot of them to cook up. They came every year."

In those days, there were vastly more butterflies about than today; Pauline Conner remembered that when she was a little girl, butterflies were so numerous that many would land on her as she played.

FISH, SHELLFISH AND SEAWEED

Many kinds of fish were caught in creeks, rivers, lakes and the ocean including salmon, catfish, suckers, trout, sturgeon, bass, minnows, smelt or surf-fish, pike, rock cod and bullhead. Small fish, such as surf-fish and sardines, were eaten whole without removing the intestines. The Kumeyaay of the San Diego region cut off the fins, tails and heads of certain fish and used them to make a nourishing soup. Winter harvest of lobsters, scallops, shrimp, octopus and crabs were eaten too. Mussels, clams and crayfish were harvested by diving to the bottom of rivers; abalone and chitons were gathered off rocks mainly in the springtime along the seashore.

The California Indians collected seaweed in season to dry for later use. The Pomo saying, "When the grass is growing, the seaweed is growing. When the grass is gone, the seaweed is gone," expressed this rhythm. Coastal tribes traded dried seaweeds with interior tribes, such as the Karuk. Salt was also valued in trade, constituting the most popular trade item in native California in former days. Salt was collected for trade from the ocean by coastal tribes, or from salty interior lakes.

INDIGENOUS LAND STEWARDSHIP VALUES

California Indians depend on biological diversity and continued abundance in the landscape to meet their needs. They have developed a management system that provides for and maintains the health of the ecosystem that they so fully engaged in, through a cultural value system that sees participation with and responsibility for nature as relationship with kin. This approach to land and resource management is relationship- based; by its very nature it is based on directly available knowledge, and leads in time to a deep and intimate understanding, respect and obligations for the landscape and all its participants. Mihilakawna Pomo elder Lucy Smith, recalling her mother's teachings, describes this culturally supported learning process, "[She said] we had many relatives and, . . we all had to live together, so we'd better learn how to get along with each other. She said it wasn't too hard to do. It

was just like taking care of your younger brother or sister. You got to know them, find out what they liked and what made them cry so you'd know what to do. If you took good care of them you didn't have to work as hard. When the baby gets to be a man or woman they're going to help you out. You know, I thought she was talking about us Indians and how we are supposed to get along. I found out later by my older sister that Mother wasn't just talking about Indians, but the plants, animals, birds — everything on this earth. They are our relatives and we better know how to act around them or they'll get after us."

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Seasonal Menus

Names of group members: _____
Season assigned: _____

Design a day's menu for you and your group members that reflects the availability of Native foods during the season assigned. Remember that you may include foods that have been dried and stored. Try to come up with meals that are highly nutritious and include fruits, nuts, greens, fish and meats that provide for a balanced diet for each meal.

	Breakfast	Lunch	Dinner
protein			
fruit			
vegetable			
beverage			

Local Heroes: Phoebe Maddux

Throughout the Karuk Tribe's Nanu'ávaha Curriculum, we have included information gleaned through research on materials that focus or include the Intellectual Property of Karuk People, as well as that of Cultural Practitioners and Tribal Members to improve and supplement the lesson content. For this lesson's Local Heroes publication, we have decided to focus on one of the most important informants to linguists, ethnographers, and anthropologists in the latter part of the 19th century and first four decades of the 20th century – and one of the most quoted Karuk women in our curriculum.

Phoebe Maddux and her son, 1894. Photo taken by John Daggett (owner of Black Bear Mine) probably at her home near Folks of Salmon.

About ten years after the beginning of the California Gold Rush, Phoebe Maddux was born at ***íshshipishrihak***, a Karuk village on the flat across the River from ***ka'tim'î'in***. At that time, ***Íshipish*** was an important village located across from the Karuk People's center of the world the river, and here she was raised. Her Indian name was ***imkáanva'an***, which means "One Who Gathers Wild Sunflowers." For generations, the women in Phoebe's family had performed as ***êemshas***— as traditional Indian doctors. As a result, Phoebe grew up immersed in the lives of women who were experts in applying Karuk spirituality to the practical health needs of the people.

When she was growing up, Phoebe Maddux and her mother supported themselves by moving around to take care of the very elderly in their scattered homes. Later, as an adult, Phoebe decided that supporting herself as an Indian doctor would be too much work in the new dollar money system.

Nevertheless, she did perform as the ***anneekyávaan*** (the Medicine Woman) at the Orleans Brush Dances in the 1920's.

Over the years, Phoebe also developed a reputation as an old time storyteller and teacher of Karuk language and culture. In 1926, Phoebe sang fifty traditional songs, which were recorded and are available for our listening today. In 1929, she traveled to Washington, DC, where she worked tirelessly for eight months, sharing her cultural knowledge. The many hundreds of pages of bilingual notes taken during her stay in Washington are a primary source of the cultural and linguistic information found in this curriculum.

For most of her later years, Phoebe lived on the ranch just behind Big Rock (***chinách'as***), across the River from Orleans. Her neighbors thereabout seem to have regarded her with humored respect: she was both an exceedingly knowledgeable Elder as well as quite a thoroughly modern character, who had seen—and done—many things in her day. To the academic world, she imparted much of her own knowledge, learned through the oral tradition of her people, as well as her through her experience with the world and its creatures around her. She often quoted knowledge learned from her parents, as well as that learned from Elders and other Cultural Practitioners of her era. The years Phoebe Maddux spent working with the academic community has proven to be an incredible source of knowledge about the Karuk Tribe – its resources, its traditional land management practices, its life-style practices, religion, songs, stories, medicinal formulas, tools, and regalia.