First Inhabitants

Grade: 4

Subject Areas: Life Science, Social Science

Skills: observing, identifying, drawing, predicting

Duration: 1-2 hours

Connections: ecology, art, plant science, anthropology, history

Vocabulary

flora
fauna
omnivores
inhabitants
acorn
tannins
pestle
mortar
acorn meal
granary
Mattole
Sinkyone
Bear Valley tribe
Wailakis, Yuki ?

Objective:

Students will be introduced to the variety of resources available to the California Indians and will focus on the significance of the acorn harvest.

Materials

- assorted shelled nuts (acorns, pecans, walnuts)
- hammers including correctly shaped rocks (pestles)
- wooden tables or outside location for pounding nuts
- bowls or baskets for collecting "meal"
- pictures of Native Americans preparing and storing acorns
- recipes for cooking acorn bread (see attached)
- white drawing paper
- pencils for drawing
- erasers (hard and soft)
- thin black sharpies
- oak leaves (freshly pressed)
- sprigs from different oak trees including tanoak, black oak, white oak, and Coast life oak (for show and tell)
- different acorns (optional)
- identification keys to local trees (optional)

Standards

Strands: Excellence in Environmental Education Guidelines
Strand 1 — Questioning and Analysis Skills: B) Designing investigations: Learners are able to design simple investigations. **F) Working with models and simulations:** Learners understand that relationships, patterns, and processes can be represented by models.
Strand 2.3 — Humans and Their Societies: B) Culture: Learners understand that experiences and places may be interpreted differently by people with different cultural backgrounds at different times, or with other frames of reference.
Strand 2.4— Environment and Society: A) Human/environment interactions: Learners understand that people depend on, change, and are affected by the environment. C) Resources: Learners understand the basic concepts of resource and resource distribution.

California State Educational Standards:
Life Sciences (LS) 2a: Students know plants are the primary source of matter and energy entering most food chains.
LS 3b: Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
Social Studies 42: Students will discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.

Background

Food For All

Stepping back in time to the mountains and valleys of California would have revealed a richer and more diverse landscape than we see today. Rivers would have been brimming with fish, large mammals would have been grazing in the valleys and the coastline would have been bursting with life. The diversity of native plants here exceeds that of Canada and the rest of the United States combined. Over 2,000 plants are endemic and found no where else. This abundant wealth was seized by the first inhabitants, the Native Americans of California.

Probably migrating down the coast from northern regions, the first tribes settled into California about 10,000 years ago. Surrounded by a rich bounty of both flora and fauna, (**flora** refers to plants and **fauna** to animals) California could support a density of people greater than other areas of the country. Although food resources were mixed, most tribes did not have to travel far to find food. Over time, tribes became isolated even though many of them apparently had materialistic cultures and periodically traded with one another. Group isolation is supported by the fact over 130 different languages developed across the state. Different tribes have been delineated by language families and many tribal territories were defined by geographical features like watersheds.

As with any human society, the wealth and abundance of an area's natural resources dictates the quality of life. Historians believe that the California Indians were perhaps some of the most omnivorous groups of people on the continent. **Omnivores** eat both plants and animals.No matter what region of the state was inhabited, food was not far to be found (**inhabitants** are those people who live in a particular place). Any one particular food source may not have been overwhelmingly abundant, however, choices were extremely varied. If one food source ran out, dozens of other alternatives could be found.

It is unlikely that California Indians went hungry. Winters are mild across most the state and seasonal changes brought prosperity to many places. Coastal peoples made sea worthy boats and harvested the bounty of the sea. River peoples celebratedthe great salmon migrations and devised clever ways to hunt and fish. People who lived along lakes and estuaries took advantage of fish and huge flocks of migratory waterfowl. They commonly harvested wetland plants like tule and cattails for fiber and food.

A True Nut

The diversity of peoples and their methods and tastes for various foods differed across California. Some

Local Connection

Sudden Oak Death (S.O.D.) is a plant disease threatening the coastal forests of California and Oregon. S.O.D. is caused by a fungus (*Phytophythora ramorum*) which affects a wide variety of host plants. This fungus thrives in cool, moist climates.

This pathogenic fungus can be spread in a variety of ways. It can spread through the movement of infested soil and plant materials. People can inadvertently spread the disease through travel. Spores can be carried by the wind. How this plant disease is spread is not entirely understood and many studies are being done especially through the University of California at Davis.

The two tree species most affected by this fungal disease are Tanoak (*Lithocarpus densiflora*) and Coast Live Oak (*Quercus chrysolepis*) both of which are popular trees for wood cutting. Tens of thousands of trees have died from this disease. At least 35 other plants species can get the disease which results in leaf and twig die off and other minor damage, but so far it is not very fatal to them.

It is difficult to diagnose this disease with certainty because it affects different species in different ways and it can resemble other diseases. Some characteristics that show the condition are trunk cankers and leaf spots especially when they occur in known affected areas.

farmed while others hunted. Corn, deer, buffalo, fish, elk, seal, salmon, pinyon nuts and a host of other plants and animals were eaten. One plant stands above the rest for its life giving properties—the acorn.

Aside from a few desert regions, most Californian Indians did not live far from an area where they could harvest acorns. An **acorn** is a true nut that comes from an oak tree. There are no fewer than seven species of oak living in California that produced acorns harvested by native peoples. One large tree could produce over 500 pounds of acorns in one year. Across California, there would have been millions of acorns produced every year, but people were not the only ones searching for them. Acorns are an important food for wildlife too. Squirrels, bears, birds and insects shared in this seasonal bounty.

The gathering of acorns is similar to gathering pine nuts except that a leaching process is necessary to rid the hard seeds of tannins. **Tannins** are chemicals found in many different plants and are extremely bitter. Acorns were edible only after bitter tannins were removed. This was done usually in one of two ways. Acorns were often pulverized by pounding them between two rocks. A smooth rock called a **pestle** was used to grind acorns inside a cup-like depression called a **mortar**. Many of these depressions can be found as artifacts around rocky areas of California. After removing the hard outer hull, the meat was ground into flour or **acorn meal** and warm water was repeatedly poured over the meal to wash away the tannins. The leached meal was mixed with water and placed in a water tight basket or other container and heated by the use of hot stones. The cooked mush was eaten like cooked cereal with a spoon or drunk like a thick soup. Another leaching method was to immerse whole acorns inside a basket or a sand basin in water, clay or mud. This important method was ususally followed by boiling or roasting the acorns and took more time than grinding. Sometimes buried acorns were left along a creek for a year. Evenafter cooking, acorns were high in fat, protein and carbohydrate which is why they were an important food crop (18% fat, 6% protein, 68% carbohydrate).Eaten with meat, acorns represented a complete meal.

The acorn harvest usually engaged people (mostly the women) for three months in the fall season. During this time acorns were collected, prepared and stored away for the winter. Large storage baskets were made and granaries were built above ground for preservation purposes. A **granary** is a large area built for the storage of grain, seeds, and nuts. Storage required overcoming three factors: moisture, rodents, and birds. Because of the moist climate along the California Coast, granaries located here were probably kept small and were built above ground and lined with the pungent smelling leaves of redwood or bay. To keep rats, squirrels and other animals out of hollow oak trees where granaries were sometimes built, the cavity was lined with pitch. A common practice was for a family to collect enough acorns to last two years because oaks do not always bear good crops of acorns every year.

Move with the Food

Two main groups of California Indians lived along the tributaries and main stems of the Eel and Mattole rivers: the **Mattole** and **Sinkyone**. To the north were the **Bear River People**; further east the **Wailakis**; and to the south the **Yuki**. All of these tribes spoke Athabaskan languages and functioned similarly. Some of the tribes had dogs which assisted them in hunting.

Like many other California Indian tribes, the Mattole, Sinkyone and their neighbors practiced a seasonal migration depending on the availability of food. In winter, people moved to favored places along the banks of rivers to take advantage of winter salmon runs. In spring and summer, people would move towards the coast and upto higher elevations where the days were cooler and a greater abundance of food could be found. These local tribes depended on fish, game, insects, berries, roots, bulbs, and of course the nutritious acorn.

Activity 1: Making Acorn Bread

Preparation

Collect acorns. An option is to have students collect acorns. If students are going to collect acorns, you will need to collaborate with the teacher ahead of time. Note: some years are better for acorns than others; in short years, other hard nuts can be substituted.

Materials

- assorted shelled nuts (acorns, pecans, walnuts, etc)
- hammers including correctly shaped rocks (pestles)
- wooden tables or outside location for pounding nuts
- bowls or baskets for collecting "meal"
- pictures of Native Americans
- preparing and storing acorns
- recipes for cooking acorn bread (see attached)

Procedure

1. Ask the students what they already know about the Native Americans who lived here (and still do) and elsewhere. Show a map and write the names of local tribes on the board. Have the students say these names. Some students may be ancestors of the original inhabitants. Write the word inhabitant on the board and define it. Lead a discussion about what California Indians would have eaten several hundred years ago. Write down the local food items students come up with during the discussion. Stress the fact that abundant natural resources were key to survival and a high quality of life. Introduce vocabulary from this unit like granary, tannins, mortar, pestle, flora and fauna during the questioning period. It is optional to have the students take notes.

- *Who were the first inhabitants of this area?*
- *Does anybody know a name of a local tribe?*
- *What happened to most of the Native Americans of this area?*
- *What natural resources are plentiful here?*
- *If you were a Native American living hundreds of years ago, what would you have eaten?*
- *What would have been some of the dependable food sources?*
- *What factors would Native Americans have to consider if they wanted to preserve food? (rot, animals, insects, rodents, etc.)*
- *How could a primitive person go about preserving food?*
- *How do you think the California Indians preserved acorns?*
- *How would Native Americans make acorn bread (share methods)?*

2. After questioning, show some pictures of Native Americans preparing and storing acorns. Hold up some examples of acorns. Explain to the students that they are going to pound acorns in a similar fashion as the Native Americans. Students can work in groups and take turns. Clearly explain what is expected during pounding and model the procedure the students should use.

3. An optional activity following this one could incorporate a leaching process. The students could leach the color out of a tea bag for instance.

Activity 2: Knowing the Oaks

Preparation

In this activity students will identify and trace leaves of the different local oak species. You will need to pick samples ahead of time. It is best to press enough leaves so every students can have two or more to choose from. Leaves are easy to press inside newspaper inserted in or laid under hard bound books. It is recommended that you draw some basic steps to this exercise ahead of time to show as examples.

Materials

- white drawing paper
- pencils for drawing (one per student)
- erasers (hard and soft) (one per student)
- thin black sharpies (one per student)
- oak leaves (freshly pressed)
- sprigs from different oak trees including tanoak, black oak, white oak, and Coast life oak (for show and tell)
- different acorns (optional)
- identification keys to local trees (optional)

Procedure

1. List the common oaks (including tanoak) found in the local area. Take a moment to explain how native peoples or anybody who wants to harvest wild foods, would need to closely look at plant characteristics in order to identify them correctly. Things like leaf edges, color and shape of seeds and flowers, texture of bark, and where a plant is growing are all important clues used for identification.

2. Pass around samples of leaves and acorns of different trees. If there are living oaks on the school grounds, take this opportunity to go outside and look at some living specimens. Give the students a chance to compare a few of them and see if they can come up with some morphological differences. After they have come up with some differences between tree species, review some of the key features.

3. Next, explain to the students that they are going to take their time to draw a beautiful realistic oak leaf. Instead of drawing from freehand, tell them you have a really easy way to do this that will make every one an artist. Show them examples of the three basic steps that follow. The first step is to trace a leaf on a piece of white paper using a soft pencil. Next, remove the leaf and set it next to the traced outline. Using careful observation, lightly draw where the major veins go on the hand drawn leaf using a pencil . Lastly, once you are satisfied with the leaf outline and the veins inside, trace over the pencil lines with a fine tip sharpie. Clean the drawing of pencil marks using a soft eraser. Label the species and artist's name.

4.Students may not finish in class and may want to continue with this project later (check with the classroom teacher). Once several good drawings are done, post them around the classroom. For best results have different students draw different species.

- *When do oaks produce acorns?*
- *Is there a particular kind of tree that Native Americans favored?*
- *What are some of the different types of trees that live around here?*
- *How would one identify the different types of trees from each other?*
- *What animals eat acorns*

Extensions

- Have the students draw something found in an Indian village like a granary.
- Assign a report on a Native American tribe.
- Invite a local Native American group to share their culture and stories.
- Create art projects using natural materials found locally
- Graph populations of California Indians or different groups of plants and animals found in California.
- Explore the various foods that came from the Americas.
- Research the local flora and fauna of the area.

References

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CULTURE AREAS of NATIVE CALIFORNIA

http://hearstmuseum.berkeley.edu/outreach/pdfs/teaching_kit.pdf

Making Acorn Bread

Acorn Bread Recipe

Have students review documents and complete a document analysis worksheet for each. You may want to have a brief discussion of the photographs to reinforce understanding.

Try the following recipe for acorn bread (makes one loaf):

Ingredients
1 cup acorn meal
1 cup wheat flour
2 T. baking powder
½ tsp sal
3 T. sugar
1 egg, beaten
1 cup milk
3 T. oil

*Acorn flour can be difficult to find, although it is often carried in Korean grocery stores

Directions
1. Sift together acorn meal, wheat flour, baking powder, salt and sugar.
2. In a separate bowl, mix together, egg, milk and oil.
3. Combine dry ingredients and liquid ingredients.
4. Stir just enough to moisten dry ingredients.
5. Pour into a greased pan and bake at 400 degrees F for 30 minutes.

After students have reviewed the photographs and made the recipe listed above, have them discuss how the recipe above might differ from traditional California Indian ways of preparing acorn mush or bread.

http: //archives.gov/pacific/education/curriculum/4th-grade/acorn-teaching-activities.html