



# RANCHO SANTA ANA BOTANIC GARDEN

Teacher Information & Classroom Activities



# Native Partners

Plants & People of California

Material to supplement a field trip or  
Native Partners Outreach Program

1500 North College Avenue, Claremont, CA 91711-3157  
Education Department 909-625-8767, extension 224 • [www.rsabg.org](http://www.rsabg.org)

# Introduction

The Education Department staff and volunteers of Rancho Santa Ana Botanic Garden look forward to facilitating your class in our *Native Partners, Plants and People of California* program. Experience has proven that students gain maximum enjoyment and benefit from their experience at the Garden when they have had some pre-visit classroom preparation. Included in this packet is background information about Native peoples of Southern California, as well as lessons and activities linking our **Native Partners Program** with language arts, science, mathematics and art.

## Program Organization

This program is organized to accommodate a maximum of 80 students. If 80 students are not arriving from your school, your class may be paired with a class from a different school. After a general greeting, a volunteer Nature Interpreter will accompany each group of 5-10 students in a rotation through information and activity stations, a visit to the Tongva village site and a guided ethnobotanical walk in the Garden. At least **two adults** from the school must accompany each student group.

## Program Activities

The program stations focus on the uses of native plants and natural materials for food, fiber and fun. Each station has a few main points which the Nature Interpreter discusses with his or her group. An eyes-on period gives students the opportunity to look at and touch items on the table. The Nature Interpreter describes these items and answers any questions. Some stations include hands-on activities.

**Food Stations:** The main points of discussion are: 1) Wild plants and animals as food sources, 2) Food was usually plentiful, but required a great deal of preparation, 3) Men, women and children had different roles in acquiring and preparing food. Station activities: Students examine different food items and use nutting stones to crack and mash cherry pits gathered from the native Catalina cherry tree (*Prunus lyonii*). Students examine and touch animal pelts.

**Fiber Stations:** The main points are: 1) Fiber can be extracted from many plant parts — leaves, bark, roots, fruits, 2) Fiber has many uses. Station activities: Students observe and handle different plant materials from which fiber can be extracted. Students scrape a yucca leaf to expose fibers, creating a small paintbrush. Students twist commercially prepared fiber into a short length of cordage.

**Fun Station:** The main points are: 1) The same types of toys can be found in different areas and among different Native American groups, the difference being the use of available materials from the local environment, 2) Games were gender specific, 3) Gambling was a major form of recreation. Station activities: Students play a variety of games.

## Teachers and Students:

When speaking of the various peoples who comprised the indigenous population of California, many terms are often used, and we are often overwhelmed by so many terms and names. "First Nation People" has become an acceptable general term for all the peoples. "California Indians" and "Native Californians" is also an accepted term by linguists, historians and many First Nation People.

Once we leave the general term and begin to deal with specific areas, we should as much as possible attempt to identify the people of the area, and where possible, use their name for themselves. We speak of Europeans and then identify French, Italian or Swiss. We also refer to Scandinavians and specify Norwegian, Finn or Swede. Thus, we can speak of Native Californians and then refer to Maidu, Yokuts or Cahuilla.

When we localize further to the Los Angeles-Orange Counties basin we should speak of the "Gabrielino-Tongva" or the "Tongva" as a basic name of the original people. "Tongva" is the name they use for themselves. The name "Gabrielino" came into use when the Mission San Gabriel Archangel was established in 1771.

# Native Americans: What Not to Teach

## **Don't use the alphabet cards that say A is for apple, B is for ball, and I is for Indian.**

Develop respect for Native Americans. Stay away from I is for Indian in your alphabet teaching.

## **Don't talk about Indians as though they belong to the past.**

About 1.8 million Native Americans live in the United States, on reservations, in cities and towns and they are in all walks of life. Too many Native Americans live in conditions of poverty and powerlessness, but they are very much a part of the modern world.

## **Don't talk about "them" and "us".**

This reflects extreme insensitivity, as well as a misconception of historical facts. "They" are more truly "us" than anyone else. Native peoples are the original Americans and are the only indigenous Americans in the sense that all of their ancestors were born on this land.

## **Don't lump all Native Americans together.**

Before the Europeans, no people called themselves "Indians". They are Navajo or Seminole or Menominee, etc. The hundreds of native groups scattered throughout the U.S. are separate peoples, separate nations with separate languages, cultures and names. When teaching about Native Americans, use the word "Indians" as little as possible.

## **Don't expect Native Americans to look like Hollywood movie "Indians".**

Whatever it is that people expect Native Americans to look like, many do not fit those images. Since they come from different nations, their physical features, body structure and skin colors vary a great deal – *and none has red skin*. Because of intermarriage, Native Americans today may have European, African or other ancestry.

## **Don't let TV stereotypes go unchallenged.**

Discuss with children the TV programs they watch and help them understand the meaning of the word "stereotype." Stereotypes are sneaky. They influence the way we talk and live and play, sometimes without our knowing it. Do not say to your students, "You act like a bunch of wild Indians" Don't encourage or even allow children to play "cowboys and Indians." Be sensitive to stereotypes in everything you say and do.

## **Don't assume that Native American children are well acquainted with their heritage.**

You may expect Native American children in your class to be good resources for your "unit on Indians." Some may participate in traditional activities of their cultures. In general, however, native children have much in common with other children in the United States. Native American children need to be taught about the native heritage which, in a very real sense, is the heritage of everybody living in the United States today.

## **Don't let students think that native ways of life have no meaning today.**

All people in the United States can and must learn to live in harmony with the natural world and with one another. That is one lesson native peoples can teach your students about "the Indians."

—Edited from *Native Americans: What Not to Teach*  
by June Sark Heinrich

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# The Indigenous Californians The First Ecologists

Nature's nourishment for the first native peoples was a varied diet of deer, small animals, birds, fish, native plants and insects. They gathered bulbs and tender plant shoots in the spring, seeds in the summer, acorns in the fall and mushrooms in the winter. During the winter months, their diet consisted mainly of dried meat, acorns, dried vegetables, seeds and nuts. Many also traded with other tribal nations for such things as salt, dried or fresh shellfish and pinyon pine nuts. Foods were gathered for daily use, but most of the food was dried and stored for the winter. Thus, nature provided them with year-round nourishment.

The first native people were the first ecologists. They made use of everything on the land and particular use of the native plants.

When they used a wild plant, they usually found a use for every part of the plant. Among all the

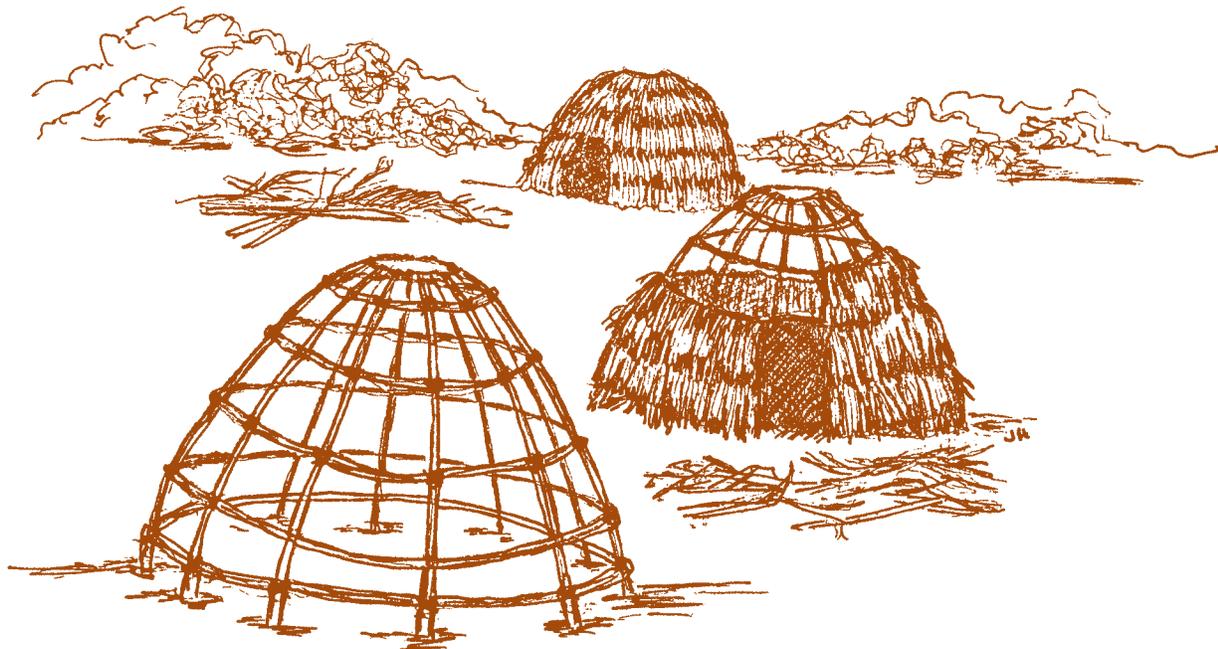
tribal nations, the woman was the gatherer of all plant foods. In today's society she would be considered an expert botanist! In her explorations for food for herself and family, she made tests with her teeth and stomach on every grass, stalk, fruit, root and seed that she could find. She examined all plant foods carefully because she knew that she was responsible for the plant food needs of her entire family. If certain plants were not available during times of drought, the Indian woman had to know about other plants that could be substituted. She knew she had to gather the seeds and plants as well as prepare them for eating and storing.

The first people of America not only revered the wilderness, they managed it with loving attention to the needs of diversity and abundance.

We might consider doing likewise.

**Kat Anderson, Ph.D.**

RSABG8/2000



# The California Indians

**M**ost of the area we now know as California was well populated with indigenous people. Rather than a few large groups, this area was inhabited by many tribelets. Tribelet is a word used by anthropologists to describe a small group which shares a language with their neighbors but maintains its own local name and territory.

Some of these groups retain a name from their own language, such as the Cahuilla, while other groups are sometimes known by the name of the Spanish mission established in their area, such as the Gabrielino. Today, however, most Gabrielino refer to their ancient name — *Tongva*.

The Tongva and the Cahuilla share the same language family — Uto-Aztekan — along with the Serrano and Luiseno. The Chumash and the Diegueno spoke dialects which stemmed from the Hokan language family. At Rancho Santa Ana Botanic Garden, the Tongva once gathered acorns under our large oaks. A branch of San Antonio Creek ran along the eastern edge of the mesa and there were springs to the north. The village was on the flat lands below the mesa. Rabbits and quail still live in the area, and coyote have come into the Garden in recent history.

## **Gabrielino-Tongva** (Gab-Ree-Al-Ee'-No-Tong'-Va)

Tongva (the general name of the people of the Los Angeles Basin) were re-named "Gabrielino" for Mission San Gabriel Archangel, established in 1771. They occupied the vast and resource-rich coastal region of what is known today as Los Angeles County and the northwest portion of Orange County; and extending inland from Aliso Creek in Orange County to a point below Malibu. Tongva also occupied the four southern Channel Islands with large populations on Santa Catalina and San Clemente. The pre-contact population has been estimated at between 8-5,000 people.

Tongva did make pottery, but they mainly used bowls and cooking pots made of steatite found on Santa Catalina Island. Mainland peoples obtained steatite through trade with their island counterparts. They also cooked in tightly coiled, watersealed baskets.

Tongva were one of the most populous and powerful ethnic groups in prehistoric California. Unfortunately, due to their missionization, their history and culture almost disappeared. Today, more than 1,800 Tongva descendants still live in the Los Angeles-Orange Counties basin.

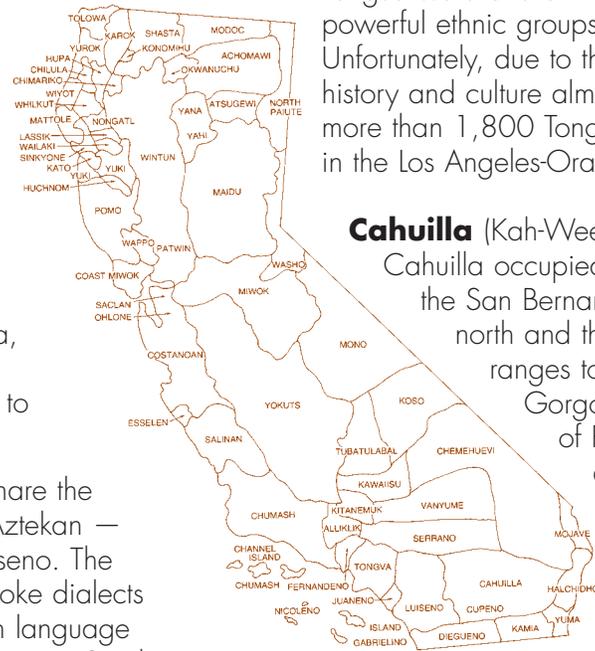
## **Cahuilla** (Kah-Wee'-Yah)

Cahuilla occupied the inland basin between the San Bernardino Mountain Range to the north and the San Jacinto and Santa Rosa ranges to the south, including San Geronio Pass, the canyons west of Palm Springs and Palm Desert and the western portions of the Colorado Desert. Their area encompassed mountain ranges, canyons, valleys and deserts with extremes of temperature, precipitation and wind. Consequently,

Cahuilla found dramatic variation in flora and fauna in different areas at different times of the year. Prehistoric population is estimated at 6,000 to 10,000 members.

**C**ahuilla placed great value on their family and all relatives were highly esteemed. They used sixty-five different words to identify related kin. They were among the few California groups which practiced agriculture, growing melons, pumpkins and corn. They produced coiled clay pottery and were skilled basket makers. To survive in the arid desert, they dug walk-in wells as deep as twenty-five feet.

Today, Cahuilla descendants comprise one of the most important Native groups in California, with a population of over 2,000 living on ten small reservations.



# California's Native Languages

The First Nation Peoples of California spoke over 80 mutually exclusive languages with many different dialects. In some areas a name for an object or a plant or even an activity changed according to the season or stage of development. While Rancho Santa Ana Botanic Garden is in the foothill heartland of the Tongva people, some of the plants are not necessarily indigenous to Southern California and their names reflect cultures beyond the borders of the local original inhabitants. For many years the Tongva names for our local flora were relatively unknown outside of the studies of linguistic authorities. But starting in the late 1980's with work by such people as Pam Munroe of UCLA, L. Frank of Tongva descent, and William McCawley, author of *The First Angelinos*, the vast vocabulary of the Tongva began to make its way into ethnobotanic literature.

Rancho Santa Ana Botanic Garden, with the help of local Tongva linguists, will, in time, introduce the use of original names and botanic concepts. However, we must also realize that while the Tongva were the local inhabitants of the Claremont area and the Los Angeles-Orange Counties basin, other peoples also used commonly shared interaction zones and their names for the local flora often differ radically from the Tongva names. Some of the other tribal nations that interacted with the Tongva were the Kokoemkam, renamed Serrano by the Spaniards, the Cahuilla, the Chumash, the Tataviam, renamed Fernandeño by the Spaniards, and the Achachemen, renamed Juaneño. What word we choose to use to designate an object or plant or geological feature then could easily vary. For example, while both the Chumash and the Tongva used redwood plank canoes, the Chumash word is "tomol" but the Tongva word is "ti'at". The Chumash word for house is "ap"; the Tongva word is "ki".

For us to arbitrarily pick a word we "like" or one we find easy to pronounce would soon lead to a confusing mix of different languages. Until such time as we can present a better approach, we have elected not to trivialize the diversity of California's indigenous linguistic heritage.

Currently there is a project underway identifying all those plants that have Tongva names. In the section entitled "Plants Parts and Uses", you will discover information on the Tongva words for some plants and terms. The complexity of language can be illustrated with the words for "oak".

## The Tongva identified five species of oak:

<i>Quercus agrifolia</i> (Coast Live Oak)	Wet
<i>Quercus chrysolepis</i> (Canyon Oak)	Weeah
<i>Quercus dumosa</i> (Scrub Oak)	Pawish
<i>Quercus kelloggii</i> (Black Oak)	Kwingily
<i>Quercus lobata</i> (Valley Oak)	Sheveh

## It becomes even more complex when we discuss the acorns.

Acorn, itself	Kwahr
Acorn meat	Chemeshkwahr
Unbleached acorn meal	Kwahr Paresh
Leached acorn meal	Kwahr Woesh
Acorn porridge	Weywish
Acorn shell	Ahhahuts
Acorn cap	Ahkooroh
The bread made from acorn meal	Peeshkaheh

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# How the World was Made

## A Tongva Myth

**B**efore the time of people on earth, Weywot, Skyfather Creator, looked down from his place in the sky. There was no earth to look at, but only water. No trees, no mountains, no valleys. Skyfather Creator looked at all the water and he made up his mind; he would make land where things could grow. As he looked down, he saw a giant turtle in the water, so huge it was as big as an island.

"I'll make land on the back of the Turtle," he decided. But the Turtle, although he was huge, was not big enough to make the beautiful land called **Tovangar** (the world). So Skyfather Creator called down, "Turtle! Hurry and bring all six of your brothers where I can talk to them."

Turtle went swimming off. It took him a whole day to find his first brother. Then another day to find the second brother. Finally, after six days he had found them all. "Skyfather Creator wants you all," he told them and led his brothers to where Skyfather Creator waited.

Skyfather Creator nodded. The seven turtles all floating in one spot were big enough to hold up the new land he planned to create. He was very pleased.

"You will make a great land," he told them. "Now stay just where you are in the water. You must always stay very, very quiet just where you are, because this is a great honor I have given you - to bear the world on your backs." The Turtle Brothers obeyed and stayed very still.

"Now for some land where things can grow," Skyfather Creator murmured. He took some tules and spread them over the turtles' backs. Then he scooped up some earth and spread it over the tules. "These humps will make good mountains," he said to himself.

When the soil was all patted down, he wiped his hand on a clean white cloud and decided what to do next. "Trees!" he cried. "I need some trees to grow." He stuck his fingers into the earth on the Turtle Brothers' backs and made the trees grow.

Then he let a little water seep up between the edges of the turtles; shells to make lakes. Water from the lakes leaked over the earth and made rivers. The rivers ran down into the sea on the west side.

Skyfather Creator realized that everything was too quiet in the new world. "That won't do," he said. "I need birds to sing." He picked some leaves from the new trees, blew on them and they flew away singing and turned into birds.

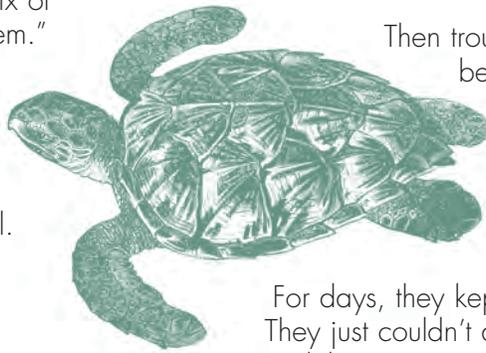
Skyfather Creator smiled, looking at the new land he had made. He looked at the young trees rustling their leaves. He listened to the music of birds and he turned away satisfied.

Then trouble came. The giant Turtle Brothers began to get restless. They wanted to swim away. "I want to swim east," said one. "No," snapped another, "west is better. West is where the sun sets. I've always wanted to see where the sun goes down."

For days, they kept quarreling among themselves. They just couldn't agree. One day, four swam east and three swam west. **Grrrrumble** went the earth under Tovangar. The ground trembled and split with a loud grinding noise. A crack opened in the earth, trees shuddered and roots twisted. Birds fled into the sky where they wheeled and screeched in fear.

Suddenly the shaking ceased. The giant turtles stopped swimming away from each other. All the tules and earth that Skyfather Creator had piled on their backs was too heavy to carry far. Also, the land was so packed and hardened that it held them back. So they made peace and the earth stopped shaking.

But, even now, every once in a while, the Turtle Brothers that hold up what is now called **California** start quarreling among themselves again. You may hear again the earth **Grrrrumble**. Sometimes buildings go down and a crack may split through the earth. Then, when the Turtle Brothers make peace, everything becomes quiet once more.



# The Acorn Maidens

## A Maïdu Myth



Once, a long time ago, when the earth was young and people were not yet created, three beautiful maidens lived in the spirit world. One day, these maidens received startling news. Human was soon to be raised on the young earth and they would be sent as gifts from the spirit world to nourish and give him strength.

The maidens were excited. "How shall we prepare for our journey?" they asked one another.

The golden acorn maiden said, "We must make new hats. We cannot go on such an important journey without nice new hats."

The tan acorn maiden answered, "But the time is short and weaving a new hat takes much work."

"Besides," said the black acorn maiden, "weaving is winter's work and we are only at the end of summer."

The golden acorn maiden replied, "Never mind the season! I am skillful and can weave a new hat quickly. And I must have a new hat for the journey."

She went to gather her weaving strands and set to work right away. The other two maidens did not have enough weaving material on hand. They grumbled as they went to collect hazel twigs and pine roots.

A few days later the creator spirit came again to the acorn maidens. He said that human had been raised on earth and that it was time for the maidens to begin their journey.

"We can't go yet!" cried the tan acorn maiden. "I haven't finished my hat. All the ends of my twining strands are sticking out."

"Never mind," said the creator spirit, "you must wear your hat as it is or leave it behind."

The black acorn maiden was upset. Her hat was only just begun and there was not time to finish. She thought, "How can I go on this great journey without a hat? I shall be the only one with an uncovered head and humans will think me ugly." She thought quickly about what she could do. Then she picked up a big bowl basket and put it

on her head. After that, she painted stripes on her face to make herself more beautiful and to draw attention away from her strange head covering.

The golden acorn maiden's hat was finished, all cleaned and neatly trimmed, and she was ready for the journey. She asked a final question as they were about to depart.

"Creator spirit, you said that we were to go to earth as gifts to humans, to nourish them and to give them strength. You said we would be called **acorns**. Tell us, before we go, what is an acorn on earth?"

The creator spirit answered, "An acorn is the fruit of the mighty oak tree."

"Oh, no!" cried the maidens. "Humans will make us into soup and spoon us up!"

The acorn maidens were filled with fear. As they spilled from the sky, they shut their eyes and turned their faces in to their hats. The black acorn maiden's face was well hidden in her basketlike hat. The golden acorn maiden's face just fit snugly into her neat cap, but the poor tan acorn maiden had to turn her face into the ragged curled edges of her unfinished hat. She called to the creator spirit as she fell:

"Oh creator spirit, my hat is such that humans will think me ugly. You send me as a gift to be eaten. If I must become an acorn, at least make my soup the best to eat, so that I will not be the least favored of all the acorn maidens." She called to the creator spirit again and again as she fell to earth. The spirit heard her plea, took pity on her and granted her wish.

And as the acorn maidens fell from the spirit world, so they have remained on earth. They have nourished and brought strength to the human people. The tan oak acorn still has a messy ragged cap, but its soup is sweet and a favorite to eat. The golden acorn has a neat, cleaned cap, but nobody likes to eat its meat. It is hard to pound and its soup is dark with a bitter taste. The black oak acorn has a cap like a basket that covers it far down, and it still bears black stripes after all this time.

# Plant Parts and Uses

**(Tongva word appears in parenthesis)**

PLANTS	PART USED	USES
Amole <i>Chlorogalum</i> sp. (sapachóha)	bulb	used raw as soap, to stun fish baked bulbs were eaten
	fiber	fibers from bulb were used in making brushes
	shoots	food eaten
Calif. Bay Tree <i>Umbellularia californica</i> (takápe kakáaka)	fruit	flesh, kernel
	leaves	medicine, insect repellent
	wood (kúta)	bowls
Mesquite <i>Prosopis</i> sp. (menékeesh)	flower (áhsoin)	food
	Pods	food
	branches (amáman)	firewood, building tools
	bark (ashóhutch)	pounded to make skirts, diapers
	thorns	pierce skin for tattoos
Oaks <i>Quercus</i> sp. (wet)	sap	glue on arrows, dye, diluted for medicine
	acorns (kwar)	staple food when ground, leached and cooked
Pine <i>Pinus</i> sp. (wáshot)	bark	dye
	branches	mush-stirrers, bows
	nuts (tovaht, wáshut)	food, decorative article
Pinyon pine (tóvat)	branches	firewood
	pitch (asána)	adhesive
Calif. Black Walnut <i>Juglans</i> sp. (takápe wáshut)	bark	roofing material
	nut	food shell for gambling game husk for dye
Willow <i>Salix</i> sp. (sáhshat)	branches	poles for house framework
	shoots	baskets, seed beaters, tooth cleaners
	bark	tea for fever, aches
Yucca <i>Yucca</i> sp. (ahwéhwiñ, ákoh, henúvat)	flowers	food
	fruit	food
	leaves (ahnánash)	fiber for baskets, cordage
	roots	soap

# Native American Food Tasting

Some foods prepared and eaten by the local native people are found in supermarkets today. Chia seeds, nopales and pine nuts are carried by the larger chain grocery stores, specialty and ethnic markets and health food stores.

**Acorn Meal, Chemeshkwar:** The staple of the California native diet, acorn meal, can be made in the modern kitchen. Collect acorns from the two trees that produce the largest acorns, *Quercus kelloggii* (California Black Oak) or *Quercus chrysolepis* (Canyon Oak). Collect in the fall, avoiding those with worm holes. Spread them in a single layer on a cookie sheet. Dry them overnight in an oven with the pilot light on. Shell the acorns using two stones or a hammer and stone. Use your blender or food processor to grind the acorn meat to a meal. Place the meal in a colander lined with cheesecloth. Pour boiling water over the meal until it is palatable—three to ten times, depending upon the acorns. Dry this meal in the oven and freeze to store. To serve, add hot water to the meal until it is of a mushy consistency. Make acorn gruel by adding more water and cooking.

**Acorn content:** water 9%, protein 4.9%, fat 5.5%, fiber 9.5%, carbohydrates 69.0%, ash 2.1%

**Chia, Pashi:** Chia seeds, *Salvia columbariae*, need no advanced preparation. Have students hold a small amount of seeds in their cheek until the seeds start to soften. Chia seeds are 20% protein.

**Nopales, Chukal:** Nopales (cactus pads) can be found fresh in some ethnic markets and in jars in both pickled and unpickled form at most grocery stores. The pickled type is not authentic but is more easily found. Native people collected young cactus pads (*Opuntia* sp.) using sticks to protect their hands. The soft spines were wiped off in the sand and the pads cut into small pieces, which were boiled and eaten or dried for future use.

**Note:** If you plan to do food tasting in you class, always survey the students and/or their parents for food allergies. Sample foods only in small quantities.

## Food for thought:

Think how the methods of preserving foods have changed (refrigeration, packaging, freezing, canning).

How did the Indians store food for long periods of time?

How is food stored in your home today?

Are any food storing methods that the Indians used still in use today?

Ask your grandmother, an older family member or neighbor how food was stored for a long period of time.

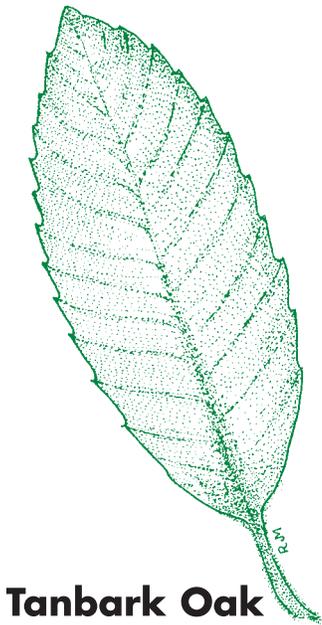
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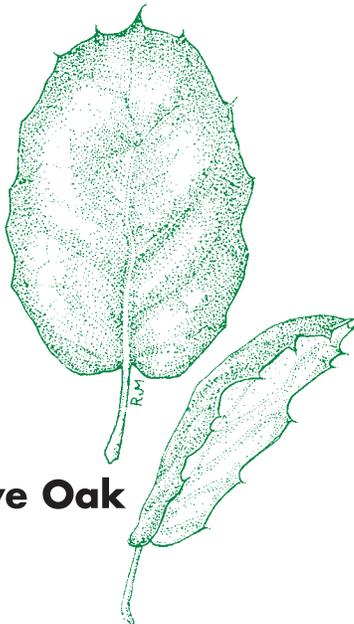
# Recognizing Acorns & Oak Trees

Eagle wants you to practice recognizing oak trees, and he has brought you to a place where there are many different oaks. Coyote is up to his old tricks. He thinks he can fool you. He has taken all the acorns from the oak trees and mixed them in a pile. He does not know how well you learn from stories. Show Eagle how you can outsmart his friend by drawing a line from each acorn to the tree from which it came.

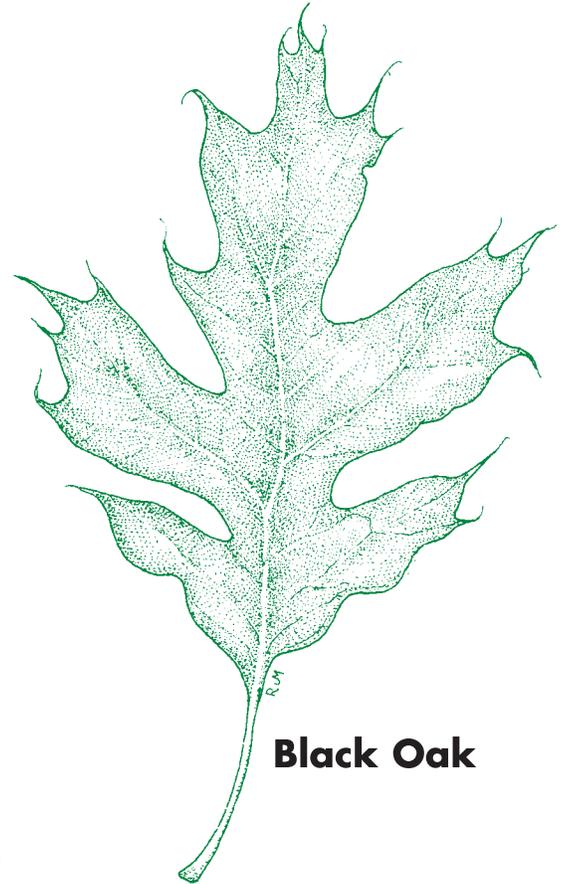
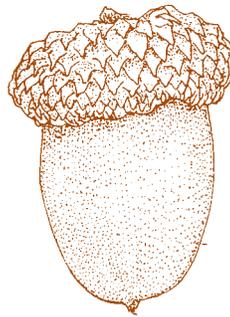
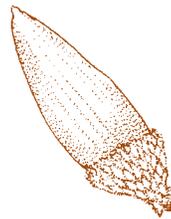
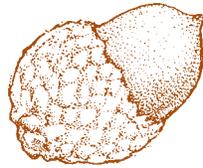
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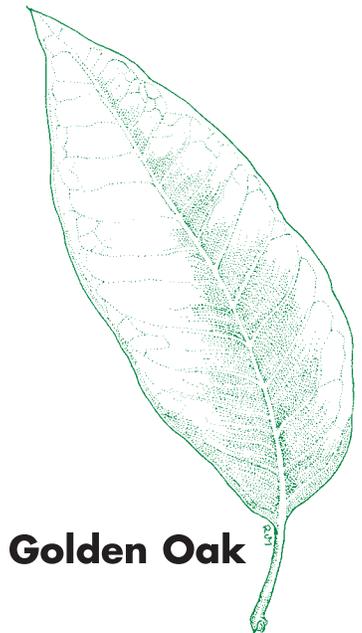
**Tanbark Oak**



**Coast Live Oak**



**Black Oak**



**Golden Oak**

# Then & Now Matching Game

One list below has some things we use today. The other list has things the California Indians would have used for the same purpose. Try to match up the words in the two columns by drawing lines between ones that match.

Rubber Band

Aspirin

TV & Books

Rifle

Nose Inhaler

Shampoo

Backpack

Blender

Soup Bowl

Willow Bark Tea

Bay Twig

Abalone Shell

Yucca Cordage

Mortar & Pestle

Bow & Arrow

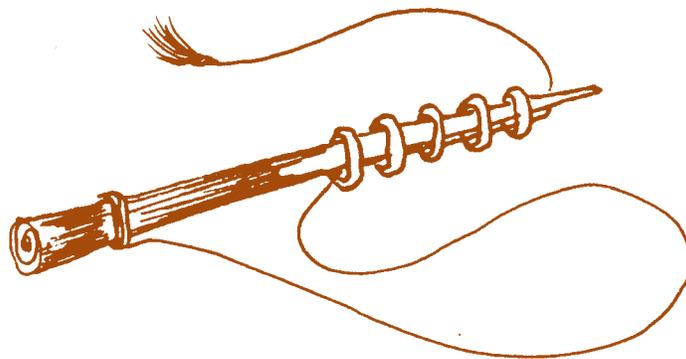
Walnut Dice Games

Carrying Basket

Amole

**Extension:** Have students research how each item was collected, prepared and used.

Can students think of any other items that can be matched "then & now."



# Language Arts

## Choose a Name from Nature

Have students pick a name for themselves using plant and animal names they will see at Rancho Santa Ana Botanic Garden. After they choose their names, have the students write a story telling why the name fits them.

### Names to choose from might include:

Mourning Dove	Makaho
Red-Tailed Hawk	Pakesar
Majestic Oak	Wet
Catalina Cherry	Donketsip
Mountain Lilac	Ishwish
Golden Currant	Kochar
Striped Feather	Ahaysin ahpean
Fan Palm	Maawel
California Walnut	Takape
Redbud	Kwahosha ahen
Purple Sage	Kasili



# Write Your Own Legend

The first native people of California did not have books and magazines. They learned by listening to stories told by the adults as they worked about the village or as they sat around a fire in the evening. Legends, such as "How the World was Made" or "The Acorn Maidens", can be explanations for something which the Indians did not understand. Some have truth in them, others are all imaginary. Try to write your own legend. You may use the following ideas or think up your own!



Where do clouds come from?

What causes rain?

How did the skunk get its white stripe?

Who or what made the hummingbird's feathers iridescent?

Explain why cactus have spines and beautiful flowers.

Why do pine trees have a lot of sap? Is their sap like our tears? Could a pine tree be a human turned into a tree? If so, how or why?

# Mathematics

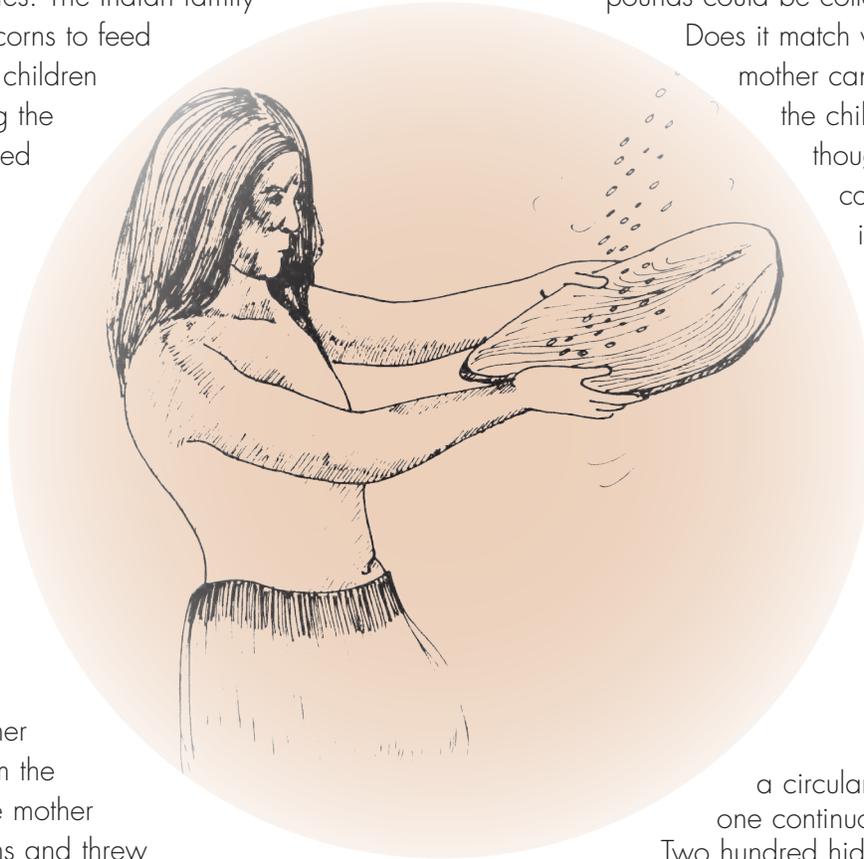
**A** very large California Coast Live Oak can produce 1000 pounds of acorns in a year. The acorns were food for squirrels, acorn woodpeckers, insects, bears, as well as Indian families. The Indian family collected enough acorns to feed two adults and two children for a year. Assuming the Indian family gathered 50% of the acorn crop, how many pounds of acorns did they gather?

**A**nother Indian family gathered 500 pounds of acorns from several oak trees on a mesa. The father beat the acorns from the tree with a stick; the mother picked up the acorns and threw them into a basket on her back. She could gather 75 pounds of acorns in an hour. Her two children could collect 40 pounds of acorns in an hour. Working together, how many hours did it take to collect the 500 pounds of acorns?

**Activity:** Place an empty backpack on a "volunteer" student. Scatter 5 pounds of marbles (one marble approximates the size and weight of an acorn) on the

grass. Instruct the student to gather and place in his/her backpack as many "acorns" as he/she can in one minute. Weigh the amount of "acorns" collected. Extrapolate this information by figuring out how many pounds could be collected in one hour.

Does it match what an Indian mother can collect? Remind the children that even though many "acorns" could be collected in one minute, the child might tire after collecting for one hour. That could affect the final calculations. Have many students try this activity, so you can find an average.



**R**abbit pelts were cut into strips in a circular pattern to give one continuous strip per hide. Two hundred hides were used to make one cape for an adult. Usually the children hunted rabbit using snares or throwing sticks or running the rabbits into a net. If 6 Indian boys went hunting and each caught two rabbits a day, how long would it take to get enough pelts to make one coat?

# Art Activity

## Native American Rock Painting



The Gabrielino-Tongva, and the Chumash people who lived along the coast in the area of Ventura, San Luis Obispo and Santa Barbara, decorated hundreds of caves with rock paintings. The meaning of these paintings, or pictographs, is not known. It is believed they are representations of their supernatural world. One of the more common motifs is an elaborate concentric circle which could be a sun motif. The paintings were done with iron oxide which has a range of color from rust and deep red to bright orange and yellow. White paint came from diatomaceous earth and black color came from charcoal.



**Activity:** Recreate sun symbols with paints or by using paper circles. White, black, rust and brown are good colors to use. Sun symbols can be painted on smooth rocks or heavy paper. Or, cut colored construction paper in graduated sizes from about 3" to 8" in diameter. The students can use their creativity in cutting the edges in different designs and then pasting different colored circles on top of each other.

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# Social Studies

## Customs, Ceremonies and Games

Work in cooperative groups to discuss, research and present to others the possible solutions to some of these questions.

Why are ceremonies and customs important to people? Name some ceremonies or customs of your family.

How has medical science changed since the days of the Indian Doctors and Medicine Men?

What would be your responsibilities in an Indian tribe?

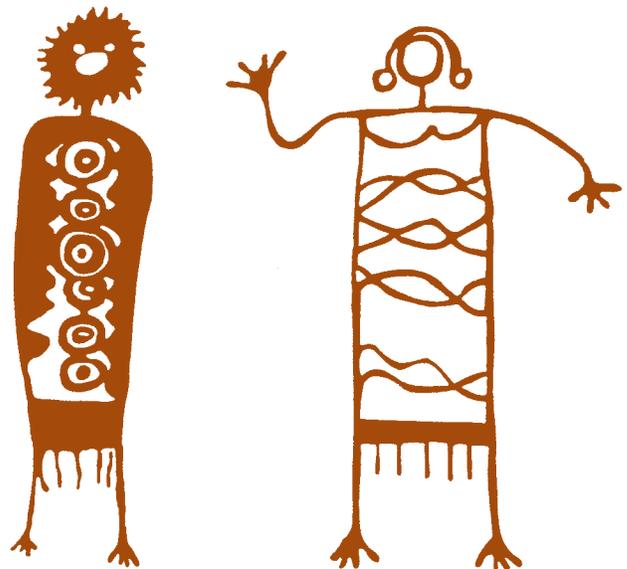
Where did the Indians believe that spirits lived?

Name one or more games that we have today that are "borrowed" from the Indians.

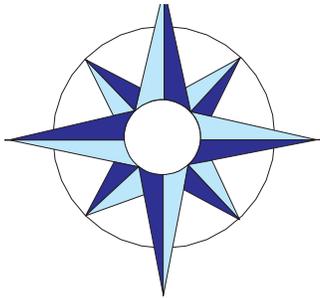
How are these games similar to the Indian games?

Why do you think there were more rain doctors in the lower Central Valley than in the northern parts of California? Check a California map on rainfall and precipitation.

Why do you think the Southern California Indians used more musical instruments than the Northern Indians?



# Map Activity



Draw a "compass rose" on your map showing North, South, East and West. What direction is North? (Usually, North is toward the top of the map.) Using the first letter of each direction, write the first

letter of the primary cardinal points: North, East, South and West (**N, E, S, W**) on the compass rose. Complete your compass rose by adding secondary points: Northeast, Southeast, Southwest, Northwest (**NE, SE, SW, NW**).

Many places in California have names which sound similar to the names used by native peoples. Other place names have interesting or unusual backgrounds.

**Use the following descriptions, locate and number the places identified below on the lines provided on the map.**

**1** The City of Malibu was once an area shared by two groups, the Chumash who called it *Homaliwu*, and the Tongva. The Tongva name is *Ongobeangna*. Locate **Malibu** on your map. It is approximately 25 miles west of Los Angeles.

**2** Mexican explorers, looking for a route from California to Arizona and back south to Mexico, passed through an area they called *Agua Caliente* (hot water). We now call this area *Palm Springs*. Locate **Palm Springs**, approximately 35 miles northwest of the Salton Sea.

**3a**  
**3b** Tongva members occupied the area around Los Angeles as well as two islands, Santa Catalina (called *Pimungna*) and San Clemente (called *Kinkinga*). Locate **Santa Catalina Island**, which is approximately 28 miles southwest of Long Beach. Also locate **San Clemente Island**, 30 miles south of Santa Catalina Island.

**4** The Tongva name for Cucamonga meant *sandy place*. Locate **Cucamonga**, approximately 35 miles east of Los Angeles.

**5** Azusa, to the Tongva meant the *place of the Grandmother*. Locate **Azusa**, approximately 20 miles northeast of Los Angeles.

**6** The native word for Temecula meant *rising sun*. Locate **Temecula**, approximately 40 miles southwest of Palm Springs.

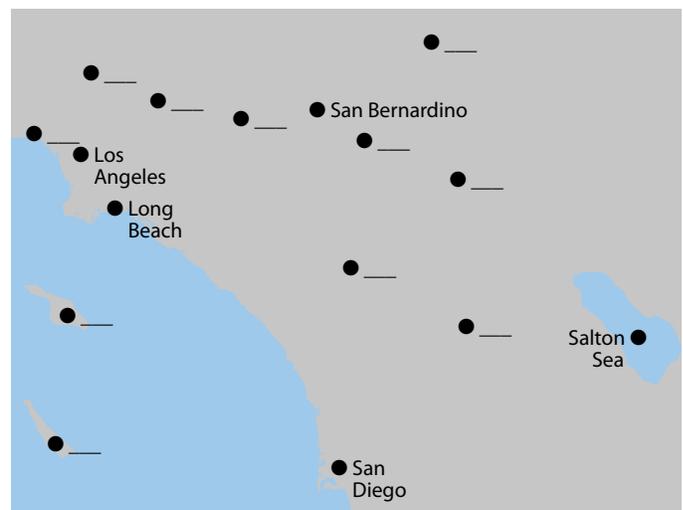
**7** The Tongva name for Tujunga meant *mountains*. Locate **Tujunga**, approximately 15 miles north of Los Angeles.

**8** Finding locations where water was available was very important to California native peoples. Pala meant *water*. Locate **Pala**, approximately 43 miles north of San Diego.

**9** The town of Yucaipa was, according to the Serrano, *wet or marshy land*. Locate **Yucaipa**, approximately 15 miles southeast of San Bernardino.

**10** Morongo was a Serrano family name. Presently the Morongo Reservation is home to descendants of the Cahuilla, Serrano, Cupeno and Chemehuevi groups. Locate **Morongo Valley**, approximately 15 miles north of Palm Springs.

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# Native American Games

The native peoples of California were very fond of gambling, a trait they shared with most Native American groups. Quite often a large crowd would be involved even though only a few people were manipulating the "dice." In addition to two teams, a scorekeeper/referee participated. The crowd would cheer their team and chant to confuse the opposing team.

**Making the Dice:** The walnut dice students use in the Native Partners program can be replicated by using English walnut halves filled with self-hardening clay. There are six die to a set.

Instead of walnut dice, stick dice, called staves, could be used in the same way that walnut dice were used. They were made by splitting 8" long sections of willow or elderberry branches in half. A design was placed on the rounded side. A modern version of staves can be made by using 6 tongue depressors with red, black and brown designs on one side only.

A set of ten counters such as foot-long twigs or new pencils is needed.

**Playing the Game:** Divide the group into two teams with one student serving as scorekeeper.

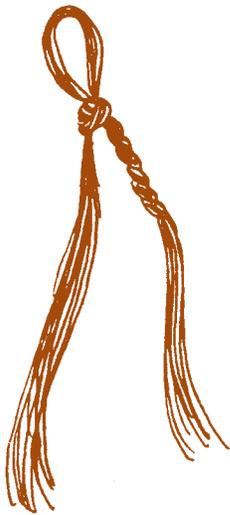
Each student throws all of the walnut dice or stick dice in turn. Alternate the play between the teams.

**Scoring:** If half of the walnut die show rounded side up and half down (design side up if you are using tongue depressor staves), the student receives one counter from the scorekeeper. If all the flat sides are up or all are down, the student receives two counters. If they fall in any other combination, no counters are given. The scorekeeper/referee makes decisions on disputed throws.

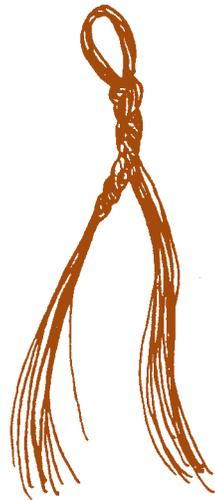
When all of the counter sticks are distributed, the game proceeds by taking counter sticks from a winner on the other team. The winning team is determined by whichever one has the most counters at the end of the play, or when all counters are held by one team.



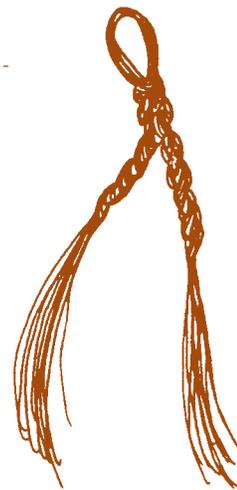
# Making Cordage from Fiber



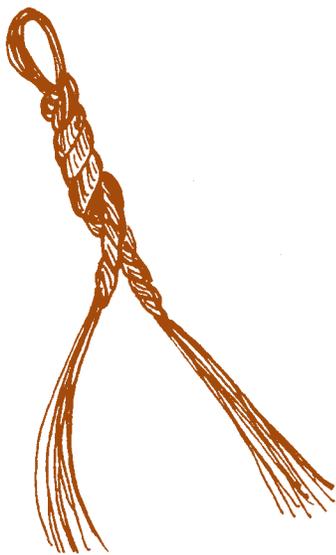
Begin with a bundle of moist fibers. Divide the bundle into two strands and begin twisting the right-hand strand to the right (clockwise), either with your fingers or down your thigh as Indians do.



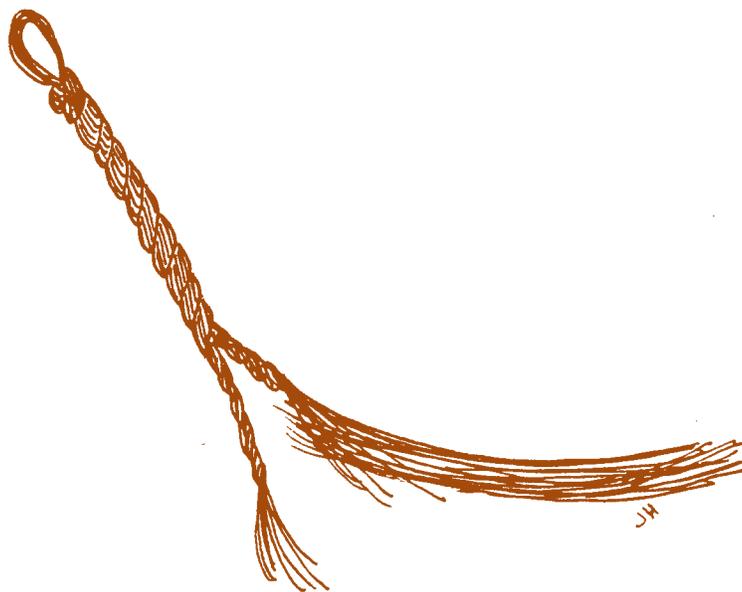
Bring the twisted strand across the untwisted fibers toward you to the left.



Now twist the new right-hand strand as with the first.



Bring that strand across toward you to the left, and twist the right-hand strand again. Each time you bring the right-hand strand to the left, twist both strands together to form the cord.



New fibers may be spliced on by adding them into the strand near the end of the cord to make it any length you choose. Using fewer fibers will result in fine, thin cord. Using many fibers will produce strong, heavy rope.

## **Fiber may be purchased at:**

Frank's Cane and Rush Supply  
7252 Heil Ave., Huntington  
Beach, CA 92647  
(714) 847-0707

# Local Native American Resource Centers

## **Rancho Santa Ana Botanic Garden**

1500 N. College Avenue, Claremont, CA 91711  
(909) 625-8767

<http://www.rsabg.org>

*Large collection of ethnobotany resources  
(non circulating library)*

*Interpretive displays on Indian basketry.  
School tour and outreach programs.*

## **American Indian Resource Center**

Huntington Park Library  
6518 Miles Avenue, Huntington Park, CA 90255  
(323) 583-1461

*Large collection of books on Native Americans.*

## **Riverside Municipal Museum**

3580 Mission Inn Avenue, Riverside, CA 92501  
(951) 826-5373

*Good exhibits of California Indian life.  
Extensive Cahuilla basket collection.*

*Exhibit catalogs available in the gift shop.  
Outreach program available.*

## **Palm Springs Desert Museum**

101 Museum Drive, Palm Springs, CA 92262  
(760) 322-6637

*Extensive Cahuilla basket collection.*

## **Palm Canyon** (part of Cahuilla reservation)

Located at the end of South Palm Canyon Dr.  
Palm Springs

*Hiking, trading post, book shop*

## **San Bernardino County Museum**

2024 Orange Tree Lane, Redlands, CA 92374  
(909) 307-2669

## **Southwest Museum**

234 Museum Drive, Los Angeles, CA 90042  
(323) 221-2164

## **Gene Autry Museum of Western Heritage**

4700 Western Heritage Way  
Los Angeles, CA 90027-1462  
(323) 667-2000

*Native American exhibits & school programs.*

## **Satwiwa**

Dedicated American Indian Natural Area  
in the Santa Monica Mts. Nat. Rec. Area

Visitor Center: (805) 370-2301

Satwiwa Cultural Center: (805) 375-1930

Friends of Satwiwa

41126 Potrero Rd., Newbury Park, CA 91320

## **Santa Monica Mountains National Recreation Area**

401 W. Hillcrest Drive, Thousand Oaks, CA 91360  
(805)370-2300

## **Malki Indian Museum**

Morongo Indian Reservation

11-795 Fields Rd. (Exit off I-10), Banning, CA 92220  
(951) 849-7289

## **Heritage Park**

12100 Mora Drive, Santa Fe Springs, CA 90670  
(562) 946-6476

Contact person : Margaret Hammon

*Reconstruction of village of "Chokiishngna"*

## **Haramokngna American Indian Cultural Center**

Angeles National Forest

Red Box Forest Service on Angeles Crest Hwy. 2

Mailing address: HC 01 Box 5

La Canada-Flintridge, CA 91001-9703

Contact person: Kat High (310) 455-1588

## **Smith Park**

City of San Gabriel

425 S. Mission Drive, San Gabriel, CA 91776

Contact person: Cindy Smith

(626) 308-2800 ext. 4603

*Tongva mural depicting village of "Sibangna"*

*located two blocks east of San Gabriel Mission  
on Broadway, west of Del Mar Ave.*

## **Mt. Baldy Visitor Center**

Angeles National Forest

Mt. Baldy Visitor Center

P.O. Box 592

Mt. Baldy Village, CA 91759

(909) 982-2829

Village of "Joatngna"

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