**Before the trip:**
In order to have your students receive the maximum enjoyment and learning from their experience here, we recommend some pre-visit classroom preparation. Included in this packet is a test that should be administered before and after your field trip, background information about the topics to be studied, as well as lessons and activities linking our Tongva Trail (grade 3) program with language arts, science, mathematics and art.

- Before the trip, administer the **Pre-test/Post Test**.
- Make sure that you’ve received the **Confirmation E-mail** from the ENC. In this e-mail, you’ll receive an **Invoice** as well as a link to access the teacher resources page. The amount of the invoice can be paid by check or credit card. Contact Education Director, Lori Whalen, at (949)645-8489 with any questions.
- Students must be divided into groups of 10 – 20 (see class list for exact number of groups according to your student total). Please use the **class list template** to separate your students into groups. This template can be found on our teacher webpage, [http://encenter.org/teacher-resources/](http://encenter.org/teacher-resources/). Make a note of any medical conditions, physical challenges or language difficulties we should be aware of. Bring the class list on the day of your field trip.
- 1-2 adult chaperones are required per student group (i.e. 2 adults for the Coyotes, 2 adults for the Hawks, etc.) Admission is waived for required chaperones. Additional chaperones must pay the field trip fee.
- Download the **nametag template** on our teacher webpage. Create a nametag for each child, corresponding to the group they are in, and pin it on before they arrive for the program. Please do not string the nametags around their necks.
- Remind students to wear comfortable clothes, closed-toed shoes, a hat, sunscreen, and layered clothing in cool weather. Remember — it is often cooler down here near the ocean!
- Children should eat a healthy breakfast on the day of the trip. They should **NOT** bring water bottles, food or backpacks.
- Directions to the ENC, information about green fundraising and other materials helpful to teachers are available on our special teacher webpage, [http://encenter.org/teacher-resources/](http://encenter.org/teacher-resources/)

**When you get here:**
- There are two parking spots for busses in the parking lot. If you are carpooling, please inform us ahead of time, as space is very limited.
- When you arrive, please keep students on the bus. The Naturalists will board the bus and ask ALL adults to disembark for an “adult meeting” with our Lead Naturalist. A staff Naturalist will do a student introduction on the bus, and then unload the students according to groups.
- Each group of 10 – 20 students will accompany a staff Naturalist on a hike through the Center, where they will rotate among six activities. Activities at each station will last approximately 15 minutes.
- Restrooms are available only in emergency situations. Have students use the restroom before leaving school.
- Students on field trips may not consume food at the ENC, unless a student has a medical reason for eating.

**After your field trip:**
- After the trip, administer the **Pre-test/Post Test** to gauge your students’ academic growth as a result of participating in our program. Send an email to lori@encenter.org with your class’s average score for the pre-test AND post-test.
- After your program we will send you a link to an online **teacher survey**. Please take the time to complete the online survey. It will help us gauge the needs of your school, teachers and students.
- Download the **student survey** on our teacher webpage. Have your students fill it out soon after their visit. Our Naturalists enjoy receiving feedback from the students they teach, and the survey can help you gauge the effect the program had on your students!
- Please return student surveys to: Environmental Nature Center, attn: Education Dept., 1601 16th St., Newport Beach, CA 92663

**If weather is a concern:**
In cases of severe weather, the ENC will call to cancel your program. If you are considering canceling, please call 949-335-8656 (cell) between 7:00 and 8:00AM.
State Social Science Standards Covered

- 3.1 Students describe the physical and human geography and use maps and photographs to organize information about people, places, and environments in a spatial context.
- 3.1.2 Students trace the ways in which people have used the resources of the local region.
- 3.1.1 Students describe the American Indian nations in their local region long ago and in the recent past.
- 3.2.1 Students describe national identities, religious beliefs, customs, and various folklore traditions.
- 3.2.2 Students discuss the ways in which physical geography, including climate, influenced how the local Native Americans adapted to their natural environment (how they obtained food, clothing, tools).
- 3.2.4 Discuss the interaction of new settlers with the already established Indians of the region

Environmental Principles and Concepts Covered in this Program:

- List the resources (goods and ecosystem services) that are provided by the ecosystems (natural systems) in their local region.
- Recognize the ways that people use the resources (goods and ecosystem services) that are provided by the ecosystems (natural systems) in their local region.
- Provide examples of goods and ecosystem services that were used by specific American Indian nations.
- Explain how local Indian nations adapted to their natural environment so that they could extract, harvest, transport and consume natural resources (goods and ecosystem services).
- Describe how physical geography, including climate, affected the natural resources (goods and ecosystem services) upon which American Indian nations depended.
- Explain how the American Indian nations affected the natural systems where they lived.

Objective

- Students will be able to describe ways the Orange County Native Americans used natural resources in their daily lives.
- Students will be aware that we use natural resources every day, just as the Native Americans did, and these natural resources are limited and should be used responsibly.

Key Concepts to Review

- The Native Americans who lived (and still do live) right here in Orange County are Gabrielinos. Many people with Gabrielino ancestry now refer to themselves as “Tongva.”
- Another group of Native Americans who lived (and still do live) right here in Orange County are Juaneños. They are called the “Acjachemen.”
- The Tongva and Acjachemen used plants for clothing, food, medicine, tools and shelter.
- String was the most important tool.
- The Tongva and Acjachemen used rabbit sticks more than bows and arrows because they hunted small prey. They used nets to catch ducks and other shore birds that lived near the beach.
- The Tongva and Acjachemen enjoy music as entertainment, but it is also an important way to save information.
- Legends are stories handed down from the past.
- The Tongva and Acjachemen often traded for what they wanted/needed.
Name: ________________________

Third Grade Tongva Trail “Post Test”

1. What people have lived in Orange County (where you live now) for hundreds of years? (Circle one answer)
   a. Tongva and Acjachemen
   b. Mayan and Aztec
   c. Navajo and Blackfoot
   d. Iroquois and Algonquin

2. Where did the Native Americans find food, medicine and the materials they used to make clothing, houses and tools hundreds of years ago? (Circle one answer)
   a. Grocery Store
   b. Hospital
   c. Nature
   d. Home Depot

3. What was the most important tool to the Native Americans hundreds of years ago? (Circle one answer)
   a. String
   b. Glue
   c. Bow & Arrow
   d. Computer

4. Which of these items was made with string? (Circle all the right answers)
   a. Arrow
   b. Net
   c. Shell money
   d. Deer antlers

5. String was made from: (Circle one answer)
   a. Plants
   b. Plastic
   c. Metal
   d. Rocks
6. What was the purpose of music in the Tongva culture? (Circle all the right answers)
   a. The Tongva played music as entertainment.
   b. To play during a ceremony.
   c. To pass information from one generation to the next.

7. Which of the following were natural resources that the Tongva and Acjachemen used to make musical instruments hundreds of years ago? (Circle one answer)
   a. Glass and clay
   b. Bones, plants and shells
   c. Rubber and plastic
   d. Aluminum and tin

8. When the Tongva and Acjachemen wanted something they... (Circle one answer)
   a. Bought it with American Dollars
   b. Traded
   c. Charged it to their credit card
   d. Bought it at the mall

9. Which of these did the Tongva and Acjachemen commonly trade? (Circle one answer)
   a. Guns and swords
   b. Shell beads and soapstone
   c. Horses and cows
   d. Plastic beads and diamonds

10. Which are some examples of traditional Native American games: (Circle all the right answers)
    a. Bone game
    b. Ring Toss
    c. Stick Gambling game
    d. Monopoly

11. Which tool was NOT used to hunt animals? (Circle one answer)
    a. Bow and arrow
    b. Nets
    c. Rabbit Sticks
    d. Gun
1. What people have lived in Orange County (where you live now) for hundreds of years? (Circle one answer)
   a. Tongva and Acjachemen
   b. Mayan and Aztec
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    d. Monopoly

11. Which tool was NOT used to hunt animals? (Circle one answer)
    a. Bow and arrow
    b. Nets
    c. Rabbit Sticks
    d. Gun
Introduction:
This is our popular “Gabrielino Walk” program. Students travel back in time to learn about the tools, trade, and customs of the Tongva (Gabrielino) and Acjachemen (Juaneño) people of Orange County. Along the trail students see, touch, and smell the plants used centuries ago by Native Americans. They make string out of plants, use “rabbit sticks” to “hunt”, perform music using authentic Tongva instruments, make “money” using pump drills, and play authentic Native American games.

Recommended Books to Read:
MY ANCESTORS' VILLAGE by Roberta Labastida
Through Indian Eyes: The Native Experience in Books for Children ed. by Beverly Slapin and Doris Seale
Lessons from Turtle Island : Native Curriculum in Early Childhood Classrooms by Guy W. Jones and Sally Moomaw
Pasquala: The Story of a California Indian Girl By Gail Faber and Michele Lasagna
The Charmstone By Eleanor Hoffman
Indians of the Oaks Melicent Lee

Suggested Classroom Activity: Tongva Trail Crossword Puzzle
Materials:
Tongva Trail Crossword Puzzle (See appendix 1)

Purpose:
Students will learn several of the terms that they will learn while here for their Tongva Trail Field Trip at the ENC.

Procedure:
• Discuss with your students several of the concepts we will be covering during our field trip, using the following pre-visit review. They will need to know Tongva, obsidian, Acjachemen, Spain, net, shells, string and legend.
• Pass out a crossword puzzle to each student (you can even do this after the field trip), and give them time to fill in the answers.

Wrap-up:
What were the most difficult words to remember and spell?

Suggested Classroom Activity: Create a New Culture
Materials:
Plain white paper
Various colors of construction paper
Pencils, crayons, markers, scissors, glue

Purpose:
• To stimulate thought about culture.
• To recognize cultural diversity.
• To prepare students to learn about the Tongva & Acjachemen.

Procedure:
1. Brainstorm with your class: What things reflect American culture (e.g. foods, clothing styles, music)? What ideas are synonymous with American thinking? Record student thoughts on the board. Based on their thoughts about American culture, create a class definition of culture. For example, the Iowa department of Education in 1989 defined culture as “the ever changing ways of believing, feeling, and
behaving of a group of people; the way of life of a people, their values, skills, customs and resulting material culture.”

2. After establishing a definition, inform the class that each student will create a new culture with its own cultural name and symbol. They may use letters from their names to create a new name (e.g. Tim Jackson would become the “Tison” people).

3. Have students draw their cultural symbols on the white paper. Encourage each student to use things that best represent him or her (i.e. a student who plays guitar might draw a guitar).

4. Give each student a piece of construction paper, cut in the shape of a shield or crest.

5. Have students write the culture’s name on the bottom of the shield, then glue on their drawings.

6. Students can write a few sentences on the backs of their shields, explaining the significance of the symbols.

Wrap-up:
Collect shields and display them in the classroom. Take note of the similarities and differences among the shields. Compare the diversity of the class cultures to the diversity of cultures among Native Americans. Students interview their parents or grandparents about their family’s culture. What is the history of the family? Do they share a religious belief? What is the origin of certain family traditions? Have the students write a short essay relating what they learned. Invite some students to share their stories in front of the class.

Suggested Classroom Activity: Secret Code (Adapted from “Preserving Culture” by the Children’s Museum at La Habra)

Materials:
Paper, pencils, pens, crayons

Purpose:
• To illustrate the importance of communication
• To show that language is essential to the survival of a culture.

Procedure:
• Ask your students: Which comes first, language or culture? Language is written, spoken and even signed. But why is it so important?
• Language is essential because it makes communication possible. Through language important cultural elements like education, history and arts are preserved. Language, like culture, develops as time passes.
• Inform the class that they will be creating their own secret code – a secret way of communicating that only they will understand.
• For each letter of the alphabet, have students create a simple drawing. For example, “A” could become an apple from it’s sound, or a tent from its shape. Do this as a class so everyone understands the code.
• Once the alphabet is established, have each student write a message to someone else in the class.
• Exchange messages and translate them into English.

Wrap-up:
Ask students, “What does language help us to do?” Language helps us to communicate. Try playing a game of charades, and challenge students to communicate non-verbally. If it is easy for children to guess the meaning of their peers’ movements, remind them that this is because they are of the same culture, and they have much in common. Would it be easy or difficult to play charades with a child from another country?

String:

State Standards: 3.2.1, 3.2.2
Hundreds of years ago, there was no tape, glue, nails or staples in California. To hold everything together, the Tongva used string! String was the most important tool that the Tongva made for themselves. Using string, they were able to make clothes, baskets, hunting tools, trading items and even their homes. Since they could not buy string, they had to make it themselves. They used many types of plants as well as parts of animals to make string.
String made out of animal tendons is called Sinew and it is very strong. At the ENC, your students will make string, using raffia that they will get to bring home.

**Basic Vocab and Concepts:**
- String was the most important tool.
- The strongest type of string, made out of animal tendons is called sinew.

**Recommended Books to Read:**
*Indian Handcrafts* C. Keith Wilbur

**Suggested Classroom Activity: Cat’s Cradle**

**Materials:**
- String for each student
- Cat’s Cradle printout guide of your choice:
  - [http://alysion.org/figures/introduc.htm](http://alysion.org/figures/introduc.htm)
  - [http://www.frontiernet.net/~steve_glimpse/stringar.html](http://www.frontiernet.net/~steve_glimpse/stringar.html)
  - [http://dine.sanjuan.k12.ut.us/string_games/introduction.html](http://dine.sanjuan.k12.ut.us/string_games/introduction.html)

**Purpose:**
Your students will learn about a string game that has been played around the world for thousands of years. String has been an important aspect of societies all over the world for a very long time. It is thought that string did not originate in one particular place, but began to appear simultaneously all over the world, in many different cultures.

**Procedure:**
- Pass out string to each student (or have them make their own: [http://www.instructables.com/id/Raffia-Cordage/](http://www.instructables.com/id/Raffia-Cordage/))
- Put students into groups of two and have them tie their strings together so that they make a loop.
- Write instructions on the board, or give each student instructions on how to make various string figures.

**Wrap-up:**
Hundreds or thousands of years ago, what would the purpose of playing string games have been? For fun, to improve basket weaving skills, to give people a chance to bond and share news.

**Games**

**State Standards: 3.2.1, 3.2.2**
The Tongva and the Acjachemen living in Southern California hundreds of years ago spent a lot of time building houses, hunting and gathering food, building fires, making clothing and cooking. That sounds like a lot of work! But like any people, fun was still a very important part of every day life. They loved to play games! They played games with a purpose. Some games were games of chance. These gambling games were played for fun and to build a sense of community. Some games were played to improve hunting skills. These hunting games made you faster, stronger and gave you better aim. At the ENC, your students will play four different hunting and gambling games.

**Basic Vocab and Concepts:**
**Hunting Games:** Games that were played to improve hunting skills, such as speed, agility, eye hand coordination and strength.

**Gambling Games:** Games that involved no skill and were games of chance. These games were played for fun and to improve a sense of community. Possessions were gambled between people in the tribe. It was believed that someone who was good at gambling games had a strong spirit.

**Recommended Books to Read:**
Suggested Classroom Activity: A Native American Gambling Game (Adapted from “Native American Games” by the Rancho Santa Ana Botanic Garden)

Materials:
- English walnut halves (6 per student)
- Self-hardening clay
- Bits of shell, beads etc. to decorate
- Or…
- Tongue depressors (6 per student)
- Markers to decorate one side
Each team of students also needs ten counters, such as foot long twigs, or pencils.

Purpose:
- To teach students about the reasons Native Americans played games
- To show students that – even though our culture is very different from that of the Native Americans – we are still very similar and we still use natural resources to create things we want or need.

Procedure
- Have your students fill English walnut halves with self-hardening clay, and decorate the clay with pieces of shell, beads, etc. each complete game should have 6 walnut halves. OR Instead of walnuts, “staves” could be made by using 6 tongue depressors. Have your students draw on the popsicle sticks making sure that each stick is the same, with different sides.
- Divide the group into two teams with one student serving as scorekeeper.
- Each student throws all of the walnut dice (or tongue depressors) in turn. Alternate play between teams.
- Scoring: If half of the walnut die show rounded side up and half down (or 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 of the other team.
- The winning team is determined by whichever one has the most counters at the end of the play, or when one team holds all counters.

Wrap-Up:
Ask students if they enjoyed playing the gambling game. Native Americans enjoyed playing games just like we do. While the games we now play are different, they are still made with natural resources (things we find in nature that we want or need). Even plastic is made from oil, which is a natural resource! What other things do we have in common (i.e. both cultures enjoy music, dancing, etc.)?

Music
State Standards: 3.1.1, 3.2.1,
Hundreds of years ago, the Tongva and the Acjachemen played lots of music. In modern times we listen to and play music for a lot of the same reasons as people did hundreds of years ago. Music is great for entertainment and it makes you feel good. California Native Americans also played music as an important part of ceremonies such as weddings, funerals and when a baby was born. At the ENC, your students will get to listen to and play some real Native American music using authentic instruments.

Basic Vocab and Concepts:
- CA Native Americans played music at ceremonies such as weddings, funerals and when a baby was born.
- The Tongva and Acjachemen enjoy music as entertainment, but it is also part of their ceremonies.
Recommended Books to Read:
Native Ways: California Indian Stories and Memories Malcolm Margolin and Yolanda Montijo
How Jackrabbit Got His Very Long Ears Heather Irbinskas and Kenneth J. Spangler
Fire Race Jonathan London, Lonny Pinola and Sylvia Long
Arrow to the Sun Gerald McDermott
Coyote Goes Hunting for Fire Margery Bernstein, Janet Kobrin and Ed Heffeman

Suggested Classroom Activity: Native American Rattle (adapted from Enchanted Learning:
http://www.enchantedlearning.com/crafts/na/rattle/)

Materials:
Twigs
Yarn
Scissors
Tape or Glue
Feathers, beads, buttons, washers, spools, shells with holes in them.

Purpose:
Your students will create their own musical instruments using items from nature or found items, similar to the ones that were used by CA Native Americans hundreds of years ago. They will learn that music can be made using almost anything!

Procedure:
• Lay out the craft supplies for your students, so they can choose what they would like to use to make their instruments.
• Have them wrap their twig with the yarn and leave several pieces of yarn (about half the length of the stick) dangling.
• Have them thread a couple “noise makers” onto each piece of string.
• They can add beads and feathers to their rattle for decoration.
• To play the rattle, your students will roll the stick between their palms to cause the noise makers to hit each other.

Wrap-out:
What other items can you use to make instruments? Homework: Have your students collect items from around the house or recyclables (with permission from their guardians) OR gather items from nature (not living things! Make sure you collect in an appropriate area) and make a different kind of instrument.

Trading
State Standards: 3.1.2, 3.1.1, 3.2.2
In Modern times, we use money to get the things that we need from stores, but hundreds of years ago, in California, people had to trade items to get what they needed. The Tongva and the Acjachemen needed items like obsidian to make their arrow heads and flint to make their fires. These types of rock were not found in California, so they had to trade with other tribes to get them. Here, by the coast, there are lots of things that they used to trade. They had salt and shells from the ocean, as well as soapstone, a soft rock good for carving. They used a tool called a pump-drill to make holes in the shells so that they could be strung onto string and worn as a necklace or to decorate clothing. At the ENC, your students will learn to use a pump drill to put a hole in a shell and will even get to see real items used for trading!

Basic Vocab and Concepts:
• The Tongva and Acjachemen often traded for what they wanted/needed.
• Obsidian: A volcanic rock that, when broken, makes a very sharp point, good for making arrow-heads.
• Pump-Drill: A tool used to make a hole in a shell so that it can be strung onto string and used for trading.

Materials:
All students should bring in some handcrafted or homemade wares to school on the day they are going to trade. These wares should be inexpensive, and made primarily from things already found around the house. Examples of wares students could bring include friendship bracelets, stationery, cookies, candles, bookmarks, ornaments, pressed flowers, artwork and clay beads. Food, drink and candy may also be used on Trading Day. If students decide to purchase materials, a class spending-limit should be established.

Purpose:
Students will learn that many years ago, before there was a modern day economy based on money, people traded everyday items to get what they needed and wanted. Different items had different values based on their usefulness, rarity and difficulty to produce.

Procedure:
• A couple of days before trading day, send a letter home with your students detailing what it is they will be doing. This will give them time to come up with something to bring.
• Prior to trading, ground rules should be established for this simulation. Review ways of saying "no thank you" that will not hurt people’s feelings. Brainstorm ideas to determine how to offer goods or services. Prior to trading, have students display their goods and services, preferably with creative displays. Allow students the opportunity to make a verbal "sales pitch" to the class.
• Allow for a 10-minute "period of review" in which students circulate among the products to be bartered. No bartering should take place at this time. During this time, students can decide what items they want and begin to determine a strategy for getting the desired item(s).
• Flash the lights in the classroom to signal the beginning of trading. This activity can run for 30-45 minutes.
• Flash the lights to signal five more minutes until the end of trading.
• Flash the lights a final time and announce the end of trading.

Wrap-Up
What did you learn about bartering? What would you do differently if you could do this activity again? Describe the best, worst and/or the most creative trade you made.

Hunting
State Standards: 3.1.2, 3.2.1, 3.2.2
Although there were lots of wild and native plants for the Tongva and the Acjachemen to eat, they also ate animals in order to survive. California Native Americans hunted deer, small mammals, ducks and fish using bows and arrows, spears, nets and rabbit sticks. They had a lot of respect for the animals they hunted. They used every part of the animal, said, “thank you” to the animals and made sure that they did not let the animals suffer. At the ENC, your students will get to do some pretend hunting, using rabbit sticks and nets.

Basic Vocab and Concepts:
• The Tongva and Acjachemen used rabbit sticks more than bows and arrows because they hunted small prey. They used nets to catch ducks and other shore birds that lived near the beach.

Suggested Classroom Activity: Native American foods
**Materials:**
Plates, napkins
Pine nuts (for each student)
Pickled Prickly Pear Cactus (also called Nopales; available at most grocery stores)
Sage tea
Strawberries
Grapes
Sunflower seeds

**Purpose:**
Students will learn that most of the fruits and vegetables that you can buy in the grocery store originally came from another state or country. We call these plants non-native because they are not from California. In this activity, your students will be able to sample some of the foods that the CA Native Americans would have eaten hundreds of years ago. These are native foods!

**Procedure:**
- Introduce your students to the concept of native plants. Most of the plant foods that we eat (apples, potatoes, onions, bananas, lettuce, etc.) come from other countries, so they were not around hundreds of years ago. The Native American diet was much different than our diet today. But some of the foods we eat ARE native.
- Pass out plates and napkins and make sure there are no food allergies!
- Give your students samples of Pine nuts (these are actually the seeds from pine cones!), Prickly Pear Cactus (also called Nopales, these are the green “pads” of the cactus with the spines removed), Sage tea (not usually made from native sage, but still tastes like what the Native Americans would have had), strawberries (the strawberries from the grocery are actually related to Native CA wild strawberries), grapes (Same as strawberries), and sunflower seeds (like strawberries).

**Wrap-up:**
What foods would you miss the most that you have now? Out of all the foods you tried, which was your favorite?

**Hike**

**State Standards: 3.1.2, 3.2.2**
Hundreds of years ago, there were no stores in which to buy things. The Native Americans of California had to find and make everything they used. They used Natural Resources to stay alive. These are things like, plants, animals, water, and rocks that come from nature and are used by people. While at the ENC, your students will visit a Native American grocery store: Nature! They will get to go on a hike and see many of the different plants that were used for food, medicine, clothing and shelter.

**Basic Vocab and Concepts:**
- The Tongva and Acjachemen used plants for clothing, food, medicine, tools and shelter.
- Natural Resources are items that come from nature and are used by humans.

**Suggested Classroom Activity: Now and Then Matching Game** (Adapted from an activity by the Rancho Santa Ana Botanic Garden)

**Materials:**
Now and Then list of items (Appendix IV)
Pictures of items
Pencils

**Purpose:**
Students will discover that even though the Tongva and the Acjachemen did not have stores, they were still able to make everything that they needed to make their lives comfortable, even as comfortable as our lives are today!
**Procedure:**
Explain to your students that one list below has some things we use today. The other list has things the Tongva and Acjachemen would have used for the same purpose. Try to match up the words in the two columns by drawing lines between the ones that match. Bay leaves, like the kind we use for cooking today, have a sharp minty odor. The Tongva and the Acjachemen sometimes got colds and they would take a Bay leaf, roll it into a tube, and stick it in their nose! It relieves any congestion you may have. The Ki was their dwelling, woven out of reeds. A mortar and pestle was used to grind up their food. Walnut dice were used for gambling games. Shell beads were used for trading. A clapper stick was used for music. Ironwood was used for digging. Pine Sap was used as chewing gum.

**Wrap-up:**
See if your students can think of any other examples.
Appendix 1: Tongva Trail Crossword Puzzle and Answer Key

Name: ____________________________

**Tongva Trail**
Complete the crossword below

**Across**
3. The most important tool
4. A story handed down from the past
5. A hunting tool
8. Another name for the Juaneno

**Down**
1. People from this country tried to ‘help’ the Tongva and Acjachemen by putting them into missions and changing their way of life
2. A glass-like rock used to make arrowheads
6. Another name for the Gabrielino
7. The Tongva and Acjachemen used pump drills to make holes in THESE to make bead ‘money.’
Name: ____________________________

**Tongva Trail**
Complete the crossword below

**Across**

3. Another name for the Gabrielino (tongva)
5. The most important tool (string)
7. Another name for the Juaneno (acjachemen)
8. People from this country tried to 'help' the Tongva and Acjachemen by putting them into missions and changing their way of life (spain)

**Down**

1. The Tongva and Acjachemen used pump drills to make holes in THESE to make bead money. (shells)
2. A hunting tool (net)
4. A glass-like rock used to make arrowheads (obsidian)
6. A story handed down from the past (legend)
Appendix 2: Legend: How California Was Made

Long, long ago, before there were people, there was hardly anything in the world but water. One day, Great Spirit looked down from heaven. He decided to make a beautiful land. But where could he begin? All he saw was water. Then he spotted a giant turtle. The turtle was as big as an island. Great Spirit decided to make the beautiful land on the turtle's back.

One turtle was not big enough. The land Great Spirit wanted to make was very large. So he called out, "Turtle, hurry and find your six brothers." Turtle swam to find them. It took him a whole day to find the first. It took another day to find the next. After six days, turtle had found his six brothers. "Come", he said. "Great Spirit wants us."

Great Spirit called down. "Turtles! Form a line, head to tail, and north to south. Umm, you three to the south please move a little to the east. Hmmm. There, that's just right. What a beautiful land you will make! Then Great Spirit reminded them, "It is a great honor to carry this land on your backs. So YOU MUST NOT MOVE!"

The turtles stayed very still. Great Spirit took some straw from his supply in the sky. He put it on the turtle's backs. Then he took some soil and patted it down on top of the straw.

Great Spirit cleaned his hands on a fluffy white cloud. "I'll use these clouds to make mountains", he said. Then Great Spirit made trees, lakes, rivers, animals and even PEOPLE. When he was finished, he looked at the beautiful land he had made. Great Spirit was very pleased. But soon trouble came. The giant turtles grew restless. They wanted to leave.

"I want to swim east," said one.

"West is best. I'll swim toward the setting sun," said another.

The turtles began to argue. They could not agree. One day, four of the turtles began to swim east. Three turtles began to swim west. THE EARTH SHOOK! It CRACKED with a loud noise! But after a minute, the shaking stopped. The turtles had to stop because the land on their backs was so heavy. They had only been able to swim a little way from each other. When they saw that they could not swim away, they stopped arguing and made up. But every once in a while the turtles that hold up California argue again. Each time they do, the earth shakes.

CREDIT: Environmental Volunteers, 1983
Adapted from “Create a Nation” by Janet Yamaguchi, Vice President, Education, Discovery Science Center
Appendix 3: The Bering Strait Land Bridge
Appendix: IV Now and Then Matching Game

- **Bay leaves**
- **Ki**
- **String made from plants**
- **Mortar & Pestle**
- **Walnut dice**
- **Shell beads**
- **Clapper Stick**
- **Ironwood**
- **Rubber band**
- **Credit card**
- **Shovel**
- **Food processor**
- **iPod**
- **Apartment**
- **Chewing gum**
- **Decongestant**
- **Xbox**
- **Pine sap**
Some Additional Information:
Ancient hunters and gatherers living in California had to learn that survival depended upon careful use of plants and animals. Survival also depended upon respectful reliance on each other. Native American children of a thousand years ago lived close to the earth and close to family. A child learning hunting and gathering skills from a grandparent learned the importance of taking care of both family and community relationships and the land, "Mother Earth."

- Robert Fry, 1993
  ENC Naturalist/Native American Specialist

**CoastLiveOak, Quercus agrifolia**

The Native Americans in California were a "Stone Age" people. Their arrows were tipped with flint or obsidian, their mortars and pestles were of stone and other tools were made of bone, shell or wood. They used no metal, had no agriculture, wove no cloth and did not make pottery. They lived entirely by hunting and gathering.

The early people had a balanced relationship with the environment and a deeply spiritual sense of the world. Their economic system was based on sharing, rather than competing. They provided the opportunity for widespread artistic creativity. They had a strong sense of family and community, demonstrated social moderation and restraint and had a way of government that served without oppressing.

Acknowledgement: Malcolm Margolin, *The Ohlone Way*.
First Whispers

Try reading this passage aloud. Imagine the scene described when you read. Do words and phrases like "wisps of damp fog," "sleeping hills," "shadowy blanket," "velvety green slopes," and "radiant butterfly" help you to "see" what is being described?

Everything was quiet. The chill of the morning air was as yet unbroken by the cry of a bird or animal. Wisps of damp fog drifted through the sleeping foothills and clung to meadow grass. The treetops along the ridge shone with a soft golden glow as the sun's rays began to bring the warmth to nature's world. Bit by bit, sound by sound, nature shed its shadowy blanket of night to welcome the dawning of a California morning.

As the mist cleared... the whispers of human voices. Silhouetted against the velvety green slopes of the foothills stood a small group of people - the first Californians. Their eyes flowed the flight of a radiant butterfly as it floated over a field of wildflowers. The quiet was undisturbed except for the noisy chatter of magpies searching for berries and seeds in a nearby thicket. A jackrabbit scurried into the shadows, unaccustomed to the sound of human voices. Through this unfolding scene of beauty, nature whispered its welcome to the first Californians.

No one knows when these first people came to California. No one know just what happened when they did come, but we do know that long, long ago there were no people living in California. There were no people in the whole North American continent! California belonged to the birds, animals, fish, trees, wind, snow and rain. It belonged to the grass, wildflowers, rocks, ocean, streams, valleys, mountains, sunsets, clouds and skies.

Adapted from A Story of California's First People, by Gail Faber & Michelle Lasagna, 1980
Petroglyph Design Forms from California
Carving and painting on rocks are believed to have had ceremonial or spiritual function.

Cogged Stones
Archeologists have found hundreds of cogged stones along the Santa Ana River drainage and Huntington Beach in the Bolsa Chica Marsh area. Unsure of their uses, cogged stones are believed to be ceremonial objects. The only other known site where cogged stones have been found is Chile in South America.
Origins
Archeologists have learned that humans inhabited Orange County at least 10 to 12 thousand years ago, perhaps even earlier. There has also been found in Orange County what archeologists believe to be the oldest ceramics in North America, dating back 7000 years, long before the arrival of the ancestors of the Tongva and the Acjachemen. It is believed that these ancestors migrated to our area about 1500 years ago from the inland desert regions. Tongva and Acjachemen are part of the Shoshonean branch of the Uto-Aztecan language family.

The early inhabitants of this area called themselves "The People" or referred to themselves by where they lived, such as "I am a native of the Place of the Mountain." The Tongva inhabited the area in and around Los Angeles and north Orange County before the arrival of Europeans. When the Spanish missionaries came, they built the San Gabriel Mission and named all of the people in the Mission's territory the "Gabrielino". The Acjachemen lived in south Orange County and parts of San Diego. They received their Spanish name "Juaneño" from the priests of the Mission in San Juan Capistrano.
Daily Life
Villages were often built near beaches, lakes or rivers. Fresh water was most important and fish was a major part of the food supply.

Willow trees and tule reeds grew abundantly in inlets and bays along the coast. Dwellings called ki were often built of tule on a willow pole framework. A smokehole was left at the top and a small door at the bottom. The house was for sleeping or shelter in stormy weather. Most daily activities were outdoors.

The early people moved about their territory gathering foods wherever they were ripe. They sometimes built temporary shelters or camped in the open when on gathering trips.

Clothing was seldom worn in this mild climate except for aprons. Sometimes robes were made for cool evenings. Deerskin and occasionally otter skin were used to make robes and aprons. Each person had a blanket made of twisted strips of rabbit fur (about 80 skins), woven with twine from yucca or milkweed fiber. Yucca fiber sandals were woven for long journeys or rough country travel.
Some Tongva Words
Collected by C. Hart Merriam (1903)

Numbers
1. Po-koo
2. W!h-h"
3. Pah-h"
4. Wah-chah
5. Mah-har
6. Pah-vah-h"
7. Wah-chah-kav-e-ah
8. Wa-ha's-wah-chah
9. Mah-ha'hr-kav-e-ah
10. Wa-h's-mah-hah'r
11. Wa-h"s-mah-hah'r-koi-po-koo
12. Wa-h"s-mah-hah'r-koi-w!h-h"

hoó-nahr "grizzly bear"
pí-yah-hó-naht "black bear"
erow "fox"

Some Acjachemen Words
Collected by J. P. Harrington (1933)

áalamal "a crow"
áama- "to hunt (animals)"
áa'vala- "to tell a story; to preach"
ahéngmal "bird"
aki' "hole or den of an animal"
anö "coyote"
áshot "eagle"
kamúurat "dragonfly"
kayúmal "fish"
mé'qash "red diamondback rattlesnake"
momt "ocean"
mónawut "tarantula"
mux- "to play; to gamble"
páa'il "turtle"
paal "water"
wiwch "acorn mush"

Food Gathering
Food was gathered wherever people went. Early spring provided tender roots, bulbs, leaves and seeds. Late spring and summer harvests included flowers, fruits and seeds. Fall was a good time for seeds and nuts, including acorns.

Small seeds were ground on a flat stone called a metate using a rock mano. Seeds were often mixed together and ground into flour called pinole (these are all Spanish terms).
A Few Plant Uses
Plants provided early people with food, medicine, shelter, warmth, clothing, tools and transportation. Many plants grow at the ENC that were once used by the Tongva and Acjachemen. The following is a partial list.

**Bay laurel** (*Umbellularia californica*) - Wet leaves were wrapped around head to cure headaches. Used as an insecticide. Used as food flavoring. Leaves rolled and stuffed up nose to cure colds. Nuts eaten.

**Black Sage** (*Salvia mellifera*) - Seed for food, tea. Leaves for food flavoring.

**Black Walnut** (*Juglans californica*) - Hulls used for dyes in basketry. Shells were filled with pitch or tar and decorated with abalone shells for use as dice. Nuts are very nutritious.

**Buckwheat** (*Eriogonum fasciculatum*) - small black seeds were gathered by the millions and ground into flour; it also makes a nice honey. Buckwheat tea soothes sore throats.

**California Sagebrush** (*Artemisia californica*) - Used as an insect repellant, to camouflage odor, and as incense.

**Cattail** (*Typha angustifolia*) - Flowers are eaten when young. Fruit is eaten raw or roasted. Young stalks and roots were eaten raw or boiled. Leaves were made into bedding, mats and clothing.

**Coast Live Oak** (*Quercus agrifolia*) - Acorns were ground into meal, which was made into mush or bread. Whole acorns were used as musical instruments, necklaces, toys and as trade items.

**Elderberry** (*Sambucus mexicana*) - Stems and fruit used to make a black dye for baskets. Berries were dried, eaten fresh or stored, or made into jelly and perhaps wine. Stems were used to make arrow shafts, whistles, clapper sticks and flutes. Blossoms were also used as shampoo.

**Laurel Sumac** (*Malosma laurina*) - Bark of roots was boiled and used as an antiseptic dressing. Will not grow where there is frost, so can be used to "predict" the weather.

**Lemonadeberry** (*Rhus integrifolia*) - A sour, refreshing drink can be made from the acidic fruit.

**Mule fat** (*Baccharis salicifolia*) - The branches were made into arrows.

**Prickly Pear Cactus** (*Opuntia occidentalis*) - Fruits were eaten dried or raw, or made into a syrup. The plant was boiled and served as a vegetable. Seeds were ground into flour.

**Sycamore** (*Platanus racemosa*) - The limbs and branches were used for dwelling construction, as well as bowl making (Sycamore is the Chumash word for bowl!).

**Toyon** (*Heteromeles arbutifolia*) - Berries were roasted during times of famine, and tea was made from its bark and leaves to help cure stomachaches and other aches and pains. Berries made a blue dye.

**Tule or Bull Rush** (*Scirpus spp.*) - Canoes were made by binding stems together, then grouping the bundles together.

**White Sage** (*Salvia apiana*) - Used as shampoo, branches made fiber, seeds ground for flour, and the tops of the flower stalks were chewed for sore throats.

**Willow** (*Salix spp.*) - bark was used to alleviate headaches.

**Yucca** (*Hesperoyucca whipplei*) - Fruit was eaten and leaves used for ropes, nets, hats, shoes, baskets and coarse blankets. The trunks and fibers were used to made sandals. The root was used to make soap and in basketry.
Trade
People from inland villages went to coastal settlements to barter for dried fish and shells, possibly bringing deer hide, acorns and chia seed to exchange.

Plank boats were used for travel to Catalina Island where prized trade items included sea otter pelts and steatite (soapstone). Steatite was carved straight from the cliffs into cooking pots, ceremonial bowls, pipes and fine little carvings of mammals, fish and birds. The raw stone was also traded. Steatite was prized for cooking because bowls could be set directly into the fire. Heat made the stone stronger. Early people in our area did not make pottery.

In the inland areas, coastal people sometimes traded with desert dwellers. Obsidian was greatly valued for knives, arrow points and spear points.

Drilled and rounded clamshell pieces were made into beaded necklaces that were used as currency in trading. The larger the shell beads and the longer the necklace, the greater the value.

3rd grade students use pump drills to bore holes in shells in the Tongva Trails Trading Station.
**Fishing**

Balsa type canoes were made from tule reeds tied together. These canoes were used for fishing and hunting on the smooth water of marshes, bays and rickers.

Sometimes nets were strung or fishing weirs were built across streams to collect fish. Spears were also used.

![Fishing Scene](image-url)

There weren't many large trees growing in this area for making dugout canoes. Driftwood that had washed down the coast during winter storms was gathered. The logs were split into planks using wedges made of stone, bone or antler. The planks were planed with stone scrapers. Stone drills cut and reamed holes in the planks through which fiber cords were laced. Asphaltum was used to seal the seams. Hard work and great skill were necessary for making these fine craft.

![Fishing Hooks](image-url)

Fishing hooks were carved from shells and stone.

![Fish Trap](image-url)

Fish Trap
Acorns

When the early people learned to prepare acorns, they gained a most important staple for their diet. Tons of acorns were harvested each fall from oaks along the foothills, providing a year round food source.

The large acorn nut was stored for 1 - 5 years to allow it to dry out. After storage, the acorn was pounded into a fine meal, which was then leached, or rinsed, with water to remove the tannic acids (and the bitter taste). It took 12 - 15 applications of water, usually in a sand bed lined with cedar leaves, to complete the leaching process.

Cooking was by "stone boiling" in a waterproof basket. Rocks from the fire were picked up with wooden tongs, dipped quickly in water to rinse off the ashes, and then placed in the meal to heat. Lava rocks were used, as other rock types would crumble from the heat. While the stones were in the basket, they were constantly moved with a loop stick stirrer to keep the basket from being scorched. As the rocks cooled, they were replaced with hot ones. Assisting children ate the layer of meal from the cooled rock before returning it to the fire.

Cooked acorn meal, or mush, was eaten with the fingers. Two days worth of mush was prepared at a time. On the second day, the left over meal would be formed into cakes and fried on a hot rock or the cold mush would be added to other foods.
Hunting
In addition to eating a diversity of plants, the early people ate insects, reptiles, rodents and larger game animals. A hunter knew a great deal about how animals thought and acted. He was skillful at tracking and expert at making animal calls. His senses were so keen that he could sometimes smell an animal even before he could see it.

Nets were used for catching small animals, birds and fish. Snares were also used. Atlatl (spear- or dart-throwers) and "rabbit sticks" were sometimes used when hunting rabbits. There were different styles of arrow, each adapted to the animal being pursued. Arrow points were usually made of flint, obsidian or chert. Living close to the ocean also provided the early people with a bounty of food resources in the estuaries, tidal zones and out to sea.

Hunting, especially deer hunting, was among the most important events in a man's life. The hunter pursued and killed deer without pity, but never without reverence. Deer were considered to be spiritually powered animals and deer hunting was an undertaking surrounded at every step with dignity, forethought and ritual.

Native Americans hunted deer wearing the skins of previous catches to allow them to get closer to their quarry.