

MISSION SAN JUAN CAPISTRANO



**TEACHER'S GUIDE
AND LESSON PLANS**

Subject: Free Teacher Resources for Field Trip Planning

Dear Teacher,

Mission San Juan Capistrano welcomes you to explore over 200 years of early California history at Orange County's treasure, the "Jewel" of the California missions. As you look ahead to your upcoming field trip we invite you to take advantage of several free teacher resources available to you. First, please be aware that the Mission proudly announces the debut of its first ever Teacher's Guide and Lesson Plan, detailing lesson plans, activities and essays to extend the learning from inside to outside of the classroom setting.

This new guide provides a curriculum-based learning experience which lists the California State Education/Curriculum Standard met at the beginning of each section and chapter. Although educators usually focus on meeting the Social Science Standards while teaching California's Native American and Spanish roots, we invite you to use your visit to study Mathematics, English, Creative Writing, Physical Science, Biological Science, Art, and much more.

Additionally, each visiting class also receives a Passport Explorer featuring Harry the Historian, an activity booklet reinforcing on-site learning for your students. Accompanying the Passport Explorer is a teacher lesson plan as well. Both lesson plans are available for free on the official Mission San Juan Capistrano website at www.missionsjc.com, click on the "Teacher's Section" link located in the column on the right side of the home page.

Thank you for selecting Mission San Juan Capistrano as your destination for inspired learning. I look forward to meeting you as you walk the path at Orange County's only mission, Mission San Juan Capistrano!

Sincerely,

Megan Dukett
Education and Interpretive Program Manager

Using this Guide

The purpose of this guide is to assist teachers and other educators to prepare students for a meaningful visit to Mission San Juan Capistrano. We hope this guide will make California history fun and applicable to the student. The guide will provide general background for each activity and will also provide recommendations on further reading and study for both students and teachers.

Mission San Juan Capistrano hopes that this guide will lead you to a fun-filled and meaningful learning experience! Please look for the content standards on each lesson plan introduction.

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ESSAY:

Mission San Juan Capistrano's Guardians*If the Mission walls could talk, would she remember you? Would she speak of you?*

If Mission San Juan Capistrano's adobe walls could talk, she might speak of many people who were important to her. She might talk of the people who lived inside her walls, like Padre Boscana, or the Acjachemen people who put all their strength into building her layer by layer. Mission San Juan Capistrano's walls would speak of Charles Lummis and Father St. John O'Sullivan.

She would remember these two very different men because they guarded her when no one else would. At Mission San Juan Capistrano's weakest moment, when much of her body laid in ruins, and no one seemed to care, Lummis and O'Sullivan tirelessly worked to restore her walls and halls so that she would shine on as the "Jewel" that they joyously treasured.

Avid adventurer Charles Lummis came to California to use his skills as a journalist and an entrepreneur. While exploring America's southwest he became fascinated with its Native peoples and Spanish culture. Lummis believed California's history was



worth saving and remembering. He wrote countless articles promoting preservation of Southern California's



"Las Primicias"-Father St. John O'Sullivan and Jose de Garcia Cruz

Spanish Heritage and worked together with his friends living in Los Angeles to form the Landmarks Club in 1895. Lummis led a crusade of guardians, the Landmarks Club, to protect important sites including Mission San Juan Capistrano. Lummis cared for Mission San Juan Capistrano and wanted Southern Californians to appreciate its history: *"Those mighty piles (the missions) belong not to the Catholic Church but to you and me, and to our children and the world. They are monuments and beacons of Heroism and Faith and Zeal and Art. Let us save them—not for the Church but for Humanity."*

If it had not been for Charles Lummis and the Landmark Club Father St. John O'Sullivan might not have had the chance to continue preservation. In 1910, O'Sullivan moved to San Juan Capistrano. He immediately fell in love with the landscape and the Mission, dedicating his life to its restoration. Often people refer to O'Sullivan as the protector and healer of Mission San Juan Capistrano, yet he might have said quite the opposite. St. John O'Sullivan might have said that his vision and work at the Mission healed and protected him. Diagnosed with tuberculosis in 1910, he lived and served as the guardian and priest of the Mission until 1934. For more than 20 years, O'Sullivan dedicated his energy and life to the preservation of Mission San Juan Capistrano for everyone to enjoy today.

Students visiting the grounds of the Mission can continue the legacy of preservation by doing their part. By picking up trash and not leaning on the fragile adobe walls, you can make a big difference too. Do your part and join the efforts of those men and women before you in protecting the walls of Mission San Juan Capistrano and she will remember you!



ESSAY: The Acjachemen Nation ORANGE COUNTY'S FIRST INHABITANTS

The Acjachemen (A-ha-che-men) Nation lived prosperously for more than 10,000 years on the coastlands of Orange County. They were among the 275,000 people that inhabited California. Their nation's territory, which consisted of many villages, spanned from Long Beach to Oceanside, as far east as Lake Elsinore, and westward to Catalina and San Clemente Islands.

Each village of 50-250 people lived within an intricately structured social system governed by a male and female clan chief called Nu and Coronne. Village leaders coordinated and directed hunting, gathering expeditions, migrations to seasonal settlements, tribal councils, and ceremonies. Each villager worked together to insure survival.



Each family in the village would construct a home called a kiicha, a dome shaped structure made of willow and tule. The tribal members were assigned tasks and responsibilities within their

own village. Acjachemen women gathered acorns, native plants, and berries, and were master basket weavers and cooks. Acorn meal, or wi-wish, was a staple food for the village. Men hunted deer and rabbit with bows and arrows and hand carved throwing sticks. Village men also fished and collected many resources from the ocean.

PHOTO CREDIT: <http://www.rain.org/campinternet/channelhistory/images/sections/history/native/g-hut.jpg>

Due to the warm climate of Orange County, the men and women of the village did not wear much clothing. Typical dress included grass skirts for the women and animal skins for the men.



Although the Acjachemen Nation relied upon hunting and gathering, they became expert native agriculturalists. Their supermarket or pantry laid in the ocean, meadows, and hillsides of their land. To help develop the plants most important to them they found ways to manipulate the land. Through a process of observation, the native people understood that the best most fruitful years came after a fire. Because of this observation, they manipulated the environment by setting low impact fires in meadows to provided rich minerals for plants to grow more abundantly.

The Acjachemen Nation through trial and observation developed great knowledge in the environment around them. They knew the medicinal value of plants, specific patterns of wildlife, and the best locations for their villages. Their everyday lives, occupation, and religion interconnected with their environment.

ACTIVITY:

The Acjachemen Language

Grade 4 English: Written and Oral Language Convention 1.0-1.

Directions:

Fill in the blank with the Acjachemen noun, verb, or adjective found in the word box below.

A long time ago, in Southern California, there lived a _____ young _____
_____. Her name was Tooy ka Shaxá (two-ee-ka Shaw-ka) or Laughing Willow and
she lived among her people, the Acjachemen Nation. She was a dutiful daughter and
a kind sister. Every fall she helped her mother by _____ the giant oak trees to
_____. As she grew older Tooy ka Shaxás mother _____ her daughter to
cook using specialized cooking sticks, baskets, and heated rocks. As she grew older,
her responsibilities grew. Most of her mornings were dedicated to _____ and _____
_____ acorns. Afternoons were Tooy ka Shaxás's favorite portion of the day. She would
_____ to the _____ so that she could _____ and gather _____.

WORD BOX**Acjachemen****English****Part of Speech**

Maar

shelling

Icha

fish

Karií'a

climbing

Máam

grinding

Wakála

walk

Wáta

shake acorns off

Momt

ocean

Ayl

abalone

Yawaywach

beautiful

Héta

taught

Shongwáala

woman

ACTIVITY:

Create Your Own Acjachemen Name

The Acjachemen people looked to nature when naming their children. Men and women received names that reflected their personality, their connection with the natural world, or family incidents and stories.

Create your own name by reviewing the Acjachemen words below. What are your interests? What animals, plants, or natural phenomena do you feel connected to? After choosing your Acjachemen Name write a brief summary of why you picked this name and how it connects to you.

Here is a small sample of the Acjachemen vocabulary. The complete list can be found online at www.juaneno.com/default.tpl?PageID=166&cart=11892081872847082&ParentID=45

aa-	“to appear, look like” (Lu. aa-) áaqap “it looks like it” pelék páal aaq “it looks like water”	akátka-	“to be hanging” akátkap “it’s hanging”
áachil	“domestic animal; horse” (Lu. áshla)	akí’	“hole or den of an animal” (cf. kiich “house”)
no’áach	“my livestock” maháarum áachil “five horses” pa’áachmach “having animals”	akwsht	“cooked, ripe” (cf. kwashóon’ “to be cooked”) (Lu. kwá\$ish “cooked”)
áachat	“holly (Sp. fusique)” (Lu. áachawut)	aláqa-	“to be awake, to wake up” hámehmach pa’láqxnga “person who wakes up easily”
áacha’	“axe” (from Sp. hacha) na’áacha’ka “my axe”	áloy-	“to bend, to stoop over”
áakul	“a plant: mulefat, guatamote, Baccharis viminea”	aló’lich	“stoop-shouldered”
áalamal	“a crow” (Lu. álwut)	alú’a-	“to look upward”
áama-	“to hunt (animals)” (Lu. áamu- “to hunt small game”) noon áamaq	alú’mal	“small” (Lu. alú’mal)
áash-	“to bathe oneself” (cf. ása- “to bathe someone”)	amáya’mal	“little boy” (Lu. amáya’mal) amáayam “little boys”
áa’vala-	“to tell a story”(Lu. áa’alvu-) áa’valaw’t “a storyteller”, plural áa’valaw’tam	amé’tekela	“baby, small child”
aaw-	“to be (in a certain location)”, present tense aa’qw (Lu. aaw-, aa’-)	amóm	“you (plural)” (cf. om “you [singular]”)
ahéngmal	“bird” (Lu. ihéngmal) ahéngmal xéela’kat “a singing bird”	amú’	“already” (Lu. amú’)
ahíka	“alive” (Lu. ahíkya)	anch	“like, similar to” (Lu. áankish)
ahívasa-	“to rot” kaláawt ahívasa “rotten wood” kaláawt ahívasaq	anó’	“coyote” (Lu. anó’), pl. anóm “coyotes”
ahváchxlam	“skinny”	aqína-	“to deliver a baby” (Lu. aqíni-)
		aqw	“above, on top” pa’áqw qaal “it’s on top of it” pa’á’qwangwa’ch “something on top”

ára-	“to kick” (Lu. ári-) ár'araq “he’s kicking it quickly”	kóche-	“to bake, roast” (Lu. kóchi-)
aráka-	‘to cut open a body’	kóo'a-	“to bite” (Lu. kó'i-)
ása-	“to bathe someone” (cf. áas- “to bathe oneself”) (Lu. áa\$á-)	kóo'mas	“a type of seashell”
áshot	“eagle” (Lu. á\$wut)	kóova-	“to drizzle”
ashóona'x	“rainbow” (Lu. a\$óonax)	koravára-	“to untangle” (Lu. kurávi- “to untie”)
chíiqa-	“(owl) to screech”	kóta-	“to cover” (Lu. qóti-)
chíka-	“to split (as wood)”	kukúul	“burrowing owl” (Lu. kukúul)
chíla-	“to winnow (grain)”	mésmal	“fog” (Lu. mésmal)
háapa-	“to drizzle” (Lu. hápi-)	mechúl	“a plant with a yellow flower”
hachúu'	“to be sad”	mexéel	“dove” (Lu. mixéel)
hakána-	“to lift, pick up” (Lu. hakáni-)	mexé'wut	“wild pigeon” (Lu. mixéewut)
hakút-	“to be hollow” (Lu. hakúhkush)	mii	“hello” (Lu. míiyu)
hakwíis-	“to exhale” (cf. hikwsch “breath”) (Lu. hakwís- “to breathe”)	páame'sh	“white-headed eagle” (Lu. páam'ush)
hákwlachal	“hungry” (Lu. hákwla- “to be hungry”)	patá'-	“to be dirty”
halú-	“to fall (sg.)” (cf. pl. qar-) (Lu. hulúka-)	píiqach	“a pimple”
hamalú'-	“to come to life”	rópa-	“to hit with the fist”
hamóoya-	“to be shy, ashamed” (Lu. hamóoya-)	shaká'	“burrowing bee” (Lu. \$uká')
heel-	“to sing” (Lu. héela-)	shá'kwol	“worm”
heev'-	“to float (intr.)” (Lu. héeva-)	tóovet	“brush rabbit” (Lu. tóovit)
heew'-	“to be happy” (cf. Lu. héewa- “to trust”) noop nashúun heew'q “my heart is glad”	tóovsheni-	“to mark, to paint” (Lu. tów\$avani-)
hawécha-	“to make happy”, noon pasúuna hawéchaq “I gladdened his heart”	túkwot	“mountain lion” (Lu. túkwut)
héla-	“to hide” (Lu. héli-)	tun'-	“to limp”
héma-	“to flutter in the breeze; to fly (a kite)” (Lu. héma-)	túukmonga	“night” (Lu. túukumit “night”)
kashíla-	“to wink” (Lu. ka\$íli-)	xaráaya-	“to snore” (Lu. xaráaya-)
kaváatmal	“clay pot” (Lu. kaváa'al)	xiim'-	“to smile” (Lu. xíima-)
kayúumal	“fish” (Lu. kuyúul)	xóoya-	“to be windy” (Lu. xóyi-)
kiich	“house” (Lu. kíicha) kiich makát “big house”, kíinga makáanga “in the big house”	xway-	“to shine” (Lu. xwáya- “to be white”)
kiim'-	“to be tied in a band”	ya'-	“to flow”
kíima-	“to tie (as one’s hair) in a band”	ye'ích	“man”
kíiva-	“to drive (animals)” (Lu. kivi-)	yo'	“mother” (Lu. -yo')
		ayú'av	“wet” (Lu. ayú'ava)
		yúulannga	“straight”



ACTIVITY: Our Kin the Acjachemen Word Scramble



Can you identify and unscramble important items of Orange County's oldest kin the Acjachemen?



aornsc

chaemenjac

gterhera

ikaihc

bkaest

tctsakibbir

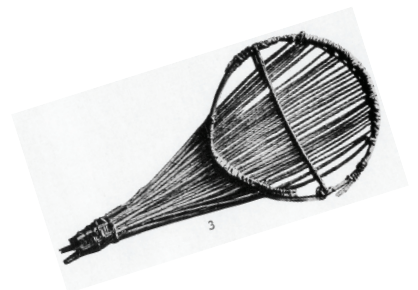
sberet edae

wbo

rwroa

oinritgsn gned

• Grinding stone • Seed beater • Gatherer • Acorns • Kiicha • Basket • Arrow • Bow • Acjachemen • Rabbit stick



LESSON:

The Food Web**Introduction:**

Students involved in this lesson will understand the diversity of the chaparral biome, the natural cycle of nature, and the Acjachemen Nation's deep interconnectedness and knowledge of nature's science.

Objectives:

- Students will be able to identify native plants and native animal species.
- Students will identify and sort animals in a food chain and or food web structure.
- Students will understand and explain how the Spanish field crops and domesticated grazing animals affected the Acjachemen people's food web.

Learners:

The lesson is designed for upper-elementary grade students. The main themes fit well into Social Science for 3rd 4th and 5th grades.

Materials: Notebook paper, food chain worksheet (p.13), glue, crayons/colored pencils.

Content Standards:**Grade 3: Life Sciences 3a-e**

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

- a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.
- b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.

c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.

d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

e. Students know that some kinds of organisms that once lived on Earth have completely disappeared and that some of those resembled others that are alive today.

Grade 4: Life Science 2a 2b and 3b 3c

2. All organisms need energy and matter to live and grow. As a basis for understanding this concept:

a. Students know plants are the primary source of matter and energy entering most food chains.

b. Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.

3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:

b Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

c. Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

LESSON:

The Food Web *(Continued)***Definitions:**

Food Chain: is how energy passes from one living thing to another.

Food Web: is a more complex version of the food chain because food chains overlap. Food webs contain all living things on earth and reveal how different living things feed off one another.

Procedure:**1. Acjachemen Culture Merges into Science**

The Acjachemen, the Native people of South Orange County, respected the natural world around them. Because the natural environment both housed and fed the Acjachemen people, they trusted and lived by a respectful code of conduct. These Native people did not take more than needed.

The Acjachemen people were so connected with the natural world. They observed and understood scientific ecology on many levels. Today we are going to understand how interconnected our life is with our environment.

2. Journal Theorizing Stage

Write the following words on the board: the sun, oak tree/acorns, squirrel, and red tail hawk. Ask students to write a theory of how these words may be connected. What do they all have in common? Give them about five minutes to write a theory.

3. Identify the Food Chain

Show students the food chain connection. Ask who is the primary producer (acorns). Who are the herbivores (squirrel), and the carnivores (red tail hawk)?

4. Journal Theorizing Stage

Ask students to answer the following question. Could a different plant be substituted in the food chain? Could a different carnivore be substituted? What would happen if there was not a primary producer (acorns) in the chain would it still work?

5. Experiment 1

Put students in groups of 4-5. Each group will receive a set of 8 nature cards of different California native plants and animals. (*You may use the nature cards attached to this lesson on p.14 - p.20.*) Give each group 15 minutes to place the cards in the right order, according to the food chain. (*There are more cards than needed, which means there could be more than one food chain that is correct. Teachers may choose to give less cards to decrease difficulty.*) Once finished have each group paste, tape, draw, or write proper the order of the food chain on a poster board/construction paper or butcher paper and present their results to the class. Does the class agree with the group's conclusion?

6. Experiment Conclusions

Each student will now go back to their journal entries and write how they confirmed or disaffirmed their previous conclusions after the class activity. Ask each student to write in their own words what a food chain is and what belongs in the chain. Give them about 5 minutes. Go over the concept by showing food webs and the food pyramid while reinforcing language like producer, primary consumers (herbivores), secondary consumers (carnivores/predators), tertiary, (top predators carnivores i.e. Mountain Lion), and decomposer (fungi, bacteria, insects).

7. Experiment 2

Discuss with students the differences between the food chain from their previous activity, to a food web, which you show on the board, overhead projector, etc. Ask them to journal their ideas. Give about 5 minutes.

Discuss students answers and emphasize the food web is showing a more detailed food chain because some animals overlap eating the same plant or animal.

LESSON: The Food Web *(Continued)*

Brainstorm with the class on the board how the type of environment would change the food chain. Propose different environments (biomes) like desert, tropical, tundra/arctic food chain, what would those food webs/chains look like? Create a list of animals and plants that would fit in each environment and have students volunteer to create a food chain.

8. Experiment Conclusions

Ask students to journal answers to the following questions.

1. How is a spider web like a food web?

Answer: Threads of a spider web are connected and all living things are connected.

2. How would a drought affect the food chain/food web?

Answer: Plants would die which would decrease food supply for every consumer.

9. The Acjachemen Connection

The Acjachemen people really understood that all living things are connected. Their culture, religion, and life reflected that truth. Their decisions on how they treated the land ultimately affected their survival.

Journal Activity: When the Spanish introduced domestic animals that ate the grasses and plants that the Acjachemen people and native animals relied upon to survive, how did that affect their food supply?

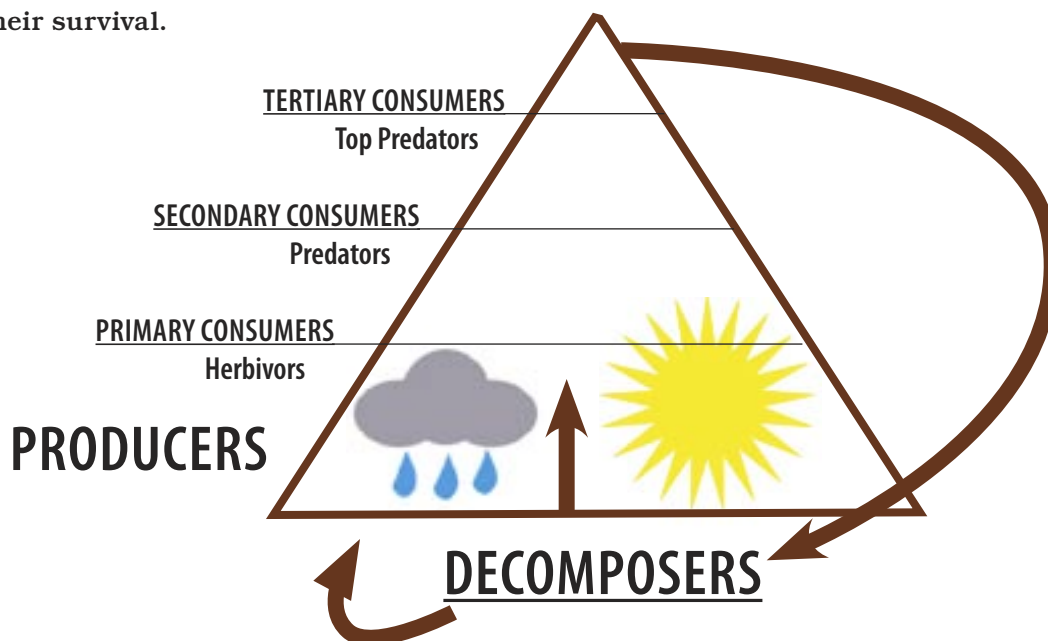
Do you think food supply affected how many Acjachemen people joined the Mission?

10. Project Extension

Give each student one plant or animal from the Experiment 1 on page 10. Have each student identify the plant/animal as a producer, primary consumer, decomposer, etc. Using library or internet resources, have each student write five facts about their animal/plant/insect, and create a picture/drawing of it.

11. Assessment

Have students' complete worksheet on page 12 for homework, quiz, and or grade.



LESSON:

The Food Web (*Continued*)**What is the difference between the 'Food Chain' and 'Food Web?'**

A popular misnomer, the 'food chain' is not actually a linear chain but a complex web. Energy is passed from one organism to another in a complex network like a spider's web.

The food chain consists of four main parts:

- **The Sun**, which provides the energy for everything on the planet.
- **Producers:** these include all green plants. These are also known as autotrophs, since they make their own food. Producers are able to harness the energy of the sun to make food. Ultimately, every (aerobic) organism is dependent on plants for oxygen (which is the waste product from photosynthesis) and food (which is produced in the form of glucose through photosynthesis). They make up the bulk of the food chain or web.
- **Consumers:** In short, consumers are every organism that eats something else. They include

herbivores (animals that eat plants), carnivores (animals that eat other animals), parasites (animals that live off of other organisms by harming it), and scavengers (animals that eat dead animal carcasses). Primary consumers are the herbivores, and are the second largest biomass in an ecosystem. The animals that eat the herbivores (carnivores) make up the third largest biomass, and are also known as secondary consumers. This continues with tertiary consumers, etc.

• **Decomposers:** These are mainly bacteria and fungi that convert dead matter into gases such as carbon and nitrogen to be released back into the air, soil, or water. Fungi, and other organisms that break down dead organic matter are known as saprophytes. Even though most of us hate those mushrooms or molds, they actually play a very important role. Without decomposers, the earth would be covered in trash. Decomposers are necessary since they recycle the nutrients to be used again by producers.

This table shows the relational biomass of each of the major groups in the food chain:

Tertiary Consumers
Secondary Consumers
Primary Consumers
Producers
Decomposers

How have humans affected the food chain? When we spray pesticides, we put the food chain in danger. By breaking one link on the chain, all of the organisms above that link are in threat of extinction (like the domino effect). By hunting animals nearly to extinction, everything above the animal in the food chain is put in danger. A 'chain reaction' in the food chain can be perilous! Since the food chain provides energy that all living things must have in order to survive, it is imperative that we protect it.

<http://library.thinkquest.org/11353/food.htm?tqskip=1>

ACTIVITY: Food Chain Worksheet

1. Place the animals in the correct order on the food chain.

- Red Tail Hawk _____
- Yucca Plant _____
- Earth Worm _____
- Rattle Snake _____
- San Diego Pocket Mouse _____

2. Producers make up the biggest group in a food web or food pyramid diagram. They need the sun, rain, and nutrients from decomposers to survive. Producers can also be called this: (Circle One)

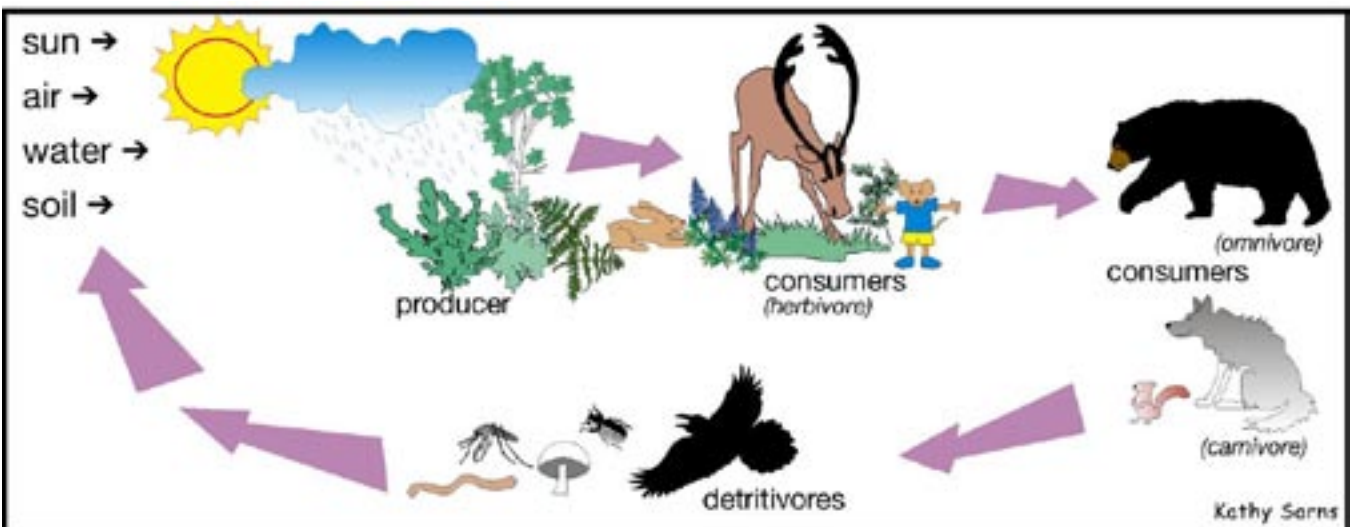
- A. Insects B. Animals C. Predators D. Plants

3. If an animal is a herbivore, they eat only plants and belong on what level of the pyramid?

4. Name three top carnivores or meat eating animals.

5. If there were more herbivores (plant eating animals) than normal would that increase the amount of predators or decrease the amount of predators?

YES NO



alaska.fws.gov/fire/role/unit1/images/I-6.jpg

Desert Shrew



Gray Fox



Chaparral Chipmunk



Foothill
Needle
Grass



Mountain Lion



Prickly Pear Cactus

Fungi



Greater Roadrunner



California
Ground
Squirrel



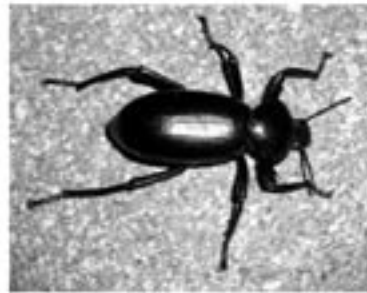
Dragon Lubber
Grasshopper



Agave/Century Plant



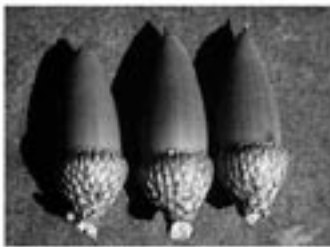
Broad-necked
Darkling
Beetle



California
King Snake



Pallid Bat



Live Oak

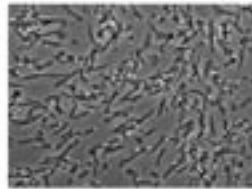


Western Spadefoot



Yucca Plant

Bacteria



San Diego
Pocket Mouse



California Quail



Western Spotted
Skunk



Bobcat



Dragon Lubber
Grasshopper



Coast Range Melic
(Native Grass)





Cottontail Rabbit

Earthworm



California Striped
Racer



Giant Wildrye



Red Tailed Hawk

Western Fence Lizard



House Cricket



Chaparral
Currant



Monkey Flower



Milkweed



Monarch
Butterfly/Catapillar



Great
Horned
Owl

Wrentit



Yellow Jacket
Wasps



Brush Rabbit



Millipede



Californian
Trapdoor
Spider



Common
Sunflower

Mountain
Lion



Western Toad



Mule Deer



Deergrass



Coyote



House Fly

California Vole



Leomonade Berry



Carpenter Bee

Blue Grama Grass



Grass Spider



Southern Pacific Rattle Snake

Raccoon



Actinobacteria
(Living Soil)



ESSAY:
California's Spanish Explorers



PHOTO CREDIT: http://www.almdron.com/historia/moderna/flota_indias/flota_0

After the initial discovery of the New World in 1492, Spain and the rest of Europe battled for colonial supremacy on the new continent. Europe's conquest for land introduced an exchange of new plants and animals on both sides of the Atlantic. The Spanish Empire would grow exponentially over the next two hundred years.



JUAN RODRIGUEZ CABRILLO

After the conquest of Mexico and South America, the Spanish looked northwest, to California. By 1542, Juan Rodriguez Cabrillo was entrusted by the Spanish King, Carlos I, to explore the lands north of Mexico. Preparation for the voyage took place in Guatemala, in which Cabrillo constructed his fleet of three sailing vessels named San Salvador, Victoria, and San Miguel. Cabrillo loaded fresh provisions, and his crew which included a priest, Indian interpreters, soldiers, and sailors.

PHOTO CREDIT: http://www.etsu.edu/cas/history/resources/Private/Faculty/Fac_Tol877ChapterDocFiles/ChapterImages/Ch2cabrillo.jpg

Cabrillo battled against the rough north east trade winds and still managed to sail up the coast of California. Historians believe he and his crew were the first Europeans to contact the Native Californians, and the first to send back reports of the landscape and harbors. Although Cabrillo died during his expedition, his name and significance has been remembered in California's history.

Almost two hundred and thirty years after Cabrillo's famous expedition, New Spain would expand its borders into Alta California. Father Junipero Serra and Gaspar de Portola led the expedition to San Diego and Monterey. Once San Diego and Monterey were secure, the Franciscan padres expanded the mission system by building twenty-one missions along the coastal areas of California between 1769 and 1823.

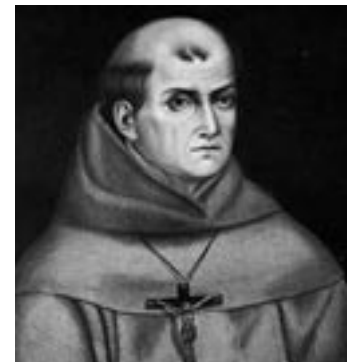


PHOTO CREDIT: <http://www.sfmuseum.net/photos12/jserra.jpg>

LESSON:

Navigating California's Coast

Introduction: This lesson enables students to understand the difficulties European explorers faced while exploring the coast of California. The lesson compares and contrasts traveling today with the Spanish explorers in the 1600s. This lesson will also introduce students to 15th century navigation tools and map making. Expansion activities follow this lesson.

Objectives:

Students will:

- Identify traveling vehicles and navigational tools from the 15th and 16th century Europeans.
- Learn about the difficulties and dangers involved in exploration.
- Identify and explain how a compass, stars, and an hour glass could be important to determining location and positioning while at sea.

Learners:

The lesson is designed for upper-elementary grade students. The main themes fit well into Social Science for 3rd 4th and 5th grades.

Content Standards**History and Social Science****Grade 3: Social Science 3.3 # 1**

1. Research the explorers who visited here, the newcomers who settled in California and the people who continue to come to the region, including their cultural and religious traditions and contributions.

Grade 4: Social Science 4.2

2. Identify the early land and sea routes to, and European settlements in, California with a focus on the exploration of the North Pacific (e.g., by Captain James Cook, Vitus Bering, Juan Cabrillo), noting especially the importance of mountains, deserts, ocean currents, and wind patterns.

Grade 5: Social Science: 5.2

1. Describe the entrepreneurial characteristics of early explorers (e.g., Christopher Columbus, Francisco Vásquez de Coronado) and the technological developments that made sea exploration by latitude and longitude possible (e.g., compass, sextant, astrolabe, seaworthy ships, chronometers, gunpowder).

Materials:

Chalk board/white board

Pictures of Navigation tools

If available view the free video about navigation tools at these websites:

www.mariner.org/exploration/index.php?page=tools

www.mariner.org/exploration/index.php?page=videoplayer&video=video2.swf

www.mariner.org/exploration/index.php?page=videoplayer&video=video3.swf

www.mariner.org/exploration/index.php?page=videoplayer&video=video6.swf



PHOTO CREDIT: http://www.ecd.ucar.edu/cas/catalog/limind/TN1_N34/MarisPacifici.html

LESSON:

Navigating California's Coast *(Continued)*

Step 1: Write on the board 2007 Travel Vehicles. Students will discuss what they think should go on the board.

Step 2: Transition your students to historic Spanish 15th and 16th century forms of travel. List forms of travel for this era.

2007 Travel Vehicles <-----> 1500 Travel Vehicles

Airplanes	Horse
Cars	Wagon/cart
Bus	Ship/boat
Train	Foot
Ship/boat	
Spaceship	
Foot	

Step 3: Introduce the word *Navigation* to your class. Explain the term's meaning, and how your students navigate themselves everyday. How does navigation directly connect to your students' everyday lives? Then compare navigation devices of 2007 to those used in 1500. Look online at the Mariners Museum (www.mariner.org).

Compare and contrast the equipment that we use today like GPS, radar, computers, and satellite connections. Make it relevant to your students by zoning in on the fact that the world can communicate easily, whereas the people of the 15th century could not.

You may find that talking about one or more of the navigation techniques listed below is helpful for students to understand life aboard an explorer's ship. It could be a very scary experience to be someone like Juan Rodriguez Cabrillo without any precise maps or knowledge of the coast of California. Every day was a risk, not knowing what or who you might meet.

2007 Navigation <-----> 1500 Navigation

Map Quest/ Google Maps	Stars
GPS: Global Positioning System	Compass
Longitude/Latitude	Sun
Wind/Ocean	Hourglass
Weather.com	Astrolabe
Accurate Maps or Atlases	Cross Staff
Radar/Sonar	Latitude
	Rudimentary Nautical Maps
	Quadrant
	Traverse
	Chip Log (<i>dead reckoning</i>)

Lesson: Navigation Tools

Cross Staff of Jacob's Staff

Ships' officers used to measure the elevation angle of the noontime sun above the horizon, which allowed them to estimate their latitude.



PHOTO CREDIT: <http://www.civilization.ca/hist/lifelines/images/licod25b.jpg>

Astrolabe

The history of the astrolabe begins more than two thousand years ago. The astrolabe is a very ancient astronomical computer for solving problems relating to time and the position of the sun and stars in the sky and still in use today. Several types of astrolabes have been made. By far the most popular type is the planispheric astrolabe, on which the celestial sphere is projected onto the plane of the equator. A typical old astrolabe was made of brass and was about 6 inches (15 cm) in diameter, although much larger and smaller ones were made.

An astrolabe contained a ring marked in degrees for measuring celestial altitudes. A rotatable alidade carried sighting pinnules. If held at eye level, a star could be sighted through the pinnules, and the mariner would read the stars altitude from the point where the alidade crossed the scale. For a sun sight, the astrolabe was allowed to hang freely and the alidade was adjusted so that a ray of sunlight passed through the hole in the upper vane and fell precisely on the hole in the lower vane.



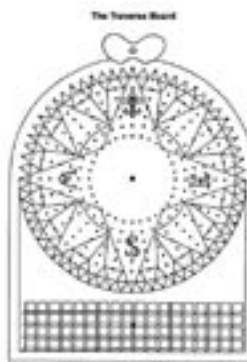
www.astrolabes.org

The Magnetic Compass

Is one of the oldest instruments for navigation. The compass allows ships to steer a selected course. By taking bearings of visible objects with a compass, the navigator is also able to fix a ship's position on a chart.



PHOTO CREDIT: <http://www.mariner.org/exploration/index.php?type=navigationtool&id=2&gallery=1>



The Traverse Board

Was used as a memory aid by navigators as early as the 17th century. With this simple device, officers were able to record how far and in what direction they had traveled during each four-hour watch. It consisted of a simple wooden board,

equipped with pegs inserted into a series of holes. The upper portion of the board was marked out in the thirty-two points of the compass.

The Hourglass

In order to calculate longitude, one needed to know the current date and time it was to complete the celestial calculation. Therefore, the hourglass became the first accurate time calculator aboard sea vessels.





ACTIVITY: Physical Science

Make a Compass

Grade 4 Science: Physical Science 1.0 B

Overview:

Make a simple compass to find magnetic north or south, depending on where you live.

Equipment:

1. Sewing needle approximately 1 inch long.
2. Small bar magnet or refrigerator magnets
3. A small piece of cork and cutting tool.
4. A small glass or cup of water to float the cork and needle.

Safety:

Needles are sharp... treat appropriately.

How to do the experiment:

1. Run a magnet over the needle a few times, always in the same direction. This action 'magnetizes' the needle. Cut off a small circle from one end of the cork (wine bottles cork works well) and drive the needle through it, from one end of the circle to the other, instead of through the exact middle - be careful not to stick yourself!
2. Float the cork needle in your cup of water so the floating needle lies roughly parallel to the surface of the water.
3. Place your 'compass' on a still surface and watch what happens. The needle should come to point towards the nearest magnetic pole - north or south as the case may be.
4. If you want to experiment further, try placing a magnet near your compass and watch what happens. How close/far does the magnet have to be to cause any effects?

Explanation:

The earth produces a magnetic field. This field, although weak, is sufficient to align iron and other paramagnetic compounds such as your needle within it. By floating the cork needle, you let it rotate freely so it can orient itself within the earth's magnetic field, to point toward the north or south poles of the planet.



PHOTO CREDIT: http://geography.sierra.cc.ca.us/booth/California7_spanish/cal_island.jpg

ACTIVITY: Geography Can You Map It?

Grade 5 Social Science: 5.2 #3

Materials: 1 piece of notebook paper per group and pencil or pen per group

Procedure

1. Divide students in teams of 4-6
2. Give each team a location located on the school campus. (Groups must keep their location and map a secret from all the other groups.)
3. Have each team draw a map using no words only landmarks to guide the map reader to the desired location.
4. Collect the team maps and shuffle them.
Give each team a map drawn by a different team.
5. After 15 minutes of each team trying to find the location given, gather all the teams together. Did they find the locations?
6. Have each team talk about their experience using the maps.
Were the maps accurately drawn?
Could you understand the symbols and landmarks?
Ask the teams how this game/activity could be similar to the Spanish Explorers coming up the coast of California?
Why would explorer cartographers (map makers) need to be precise?
Ask students to examine the routes taken by Portola and Cabrillo.

ACTIVITY: English/Creative Writing
Daily Life Aboard an
Explorer's Ship (Ship Log Entry)

Grade 4 English Written and Oral Language Conventions 1.0-1.7
 Grade 4 English Vocabulary Development 1.2

First read aloud the section from:

<http://www.mariner.org/exploration/index.php?type=webpage&id=51>

Below is a list of various frequently asked questions by students about the voyage of Christopher Columbus. The Mariner Museum does a terrific job answering the questions of children and adults visiting the museum. On the link above the following questions are answered:

- Who sailed on the voyage?
- What did they wear?
- Where did they sleep?
- What did they eat?
- What were some jobs aboard ship?
- What was their pay?
- Did they get sick?
- What type of punishments did they have?

After reading or discussing the information from the website, ask students to write a journal log entry pretending to be a sailor aboard ship.

You could ask students to use the following vocabulary in their creative writing log entry. The mariner.org article has a lot to choose from.

For instance:

Gorro: a red woolen stocking hat

Toldilla: small cabin aboard ship.

Cooper: a crew member who kept the barrels that held the food and drink from leaking and made new barrels as needed for new supplies

Pilot: The man in charge of navigation



ACTIVITY: Earth Science

Spanish Explores Impact of Ocean Currents and Wind Patterns

Grade 4 Social Science: 4.2 #2

Procedure:

1. Have your students study the maps below and determine which wind and ocean currents helped Columbus land in the New World.
2. Have your students examine the Voyage of Juan Rodriguez Cabrillo and determine the difficulties in sailing north up the California coast.

Ocean Currents



Wind Patterns

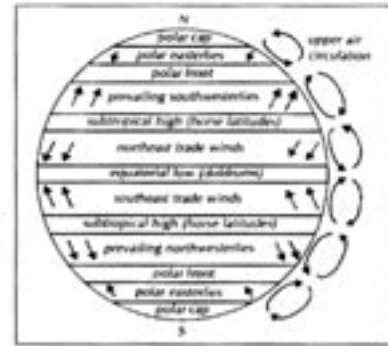


PHOTO CREDITS: <http://www.prenhall.com/tarback/EarthScience 10c>



Columbus's First Voyage, 1492-93

PHOTO CREDIT: <http://www.favimp.com/Images/map4.gif>



ACTIVITY: Mathematics
Math & Navigation

Grade 4 Mathematics, Statistics, Data Analysis and Probability: 1.1 & 1.2

Using a Chip Log a ship navigator can determine how fast the ship is going. The Chip Log is made up of a semi circle piece of wood that is thrown off the back end of the boat with a long piece of rope that has a knot tied every 47 feet and 3 inches. Once they throw the wooden piece they wait thirty seconds and then begin to count the amount of knots back to the wood piece which determines the ships speed. The pilot would then record the data on a peg board called a traverse.

Please see the video at

<http://www.mariner.org/exploration/index.php?page=videoplayer&video=video6.swf>
 to understand the measuring of speed with the chip, and traverse boards.

Statistics, Data Analysis, and Probability 1.0
 Peralonso Pinzón the Pilot (also known as the Navigator) aboard Columbus’s ship the Santa Maria, wrote down the ships speed from 8:00 AM to 7:00 PM on his Traverse board.

Find the mode, medium, mean for the speed of the Santa Maria.

Mode = _____

Medium = _____

Mean = _____

If the maximum speed of the Santa Maria is 11.3 knots (11.3 knots = ship going at 100%).

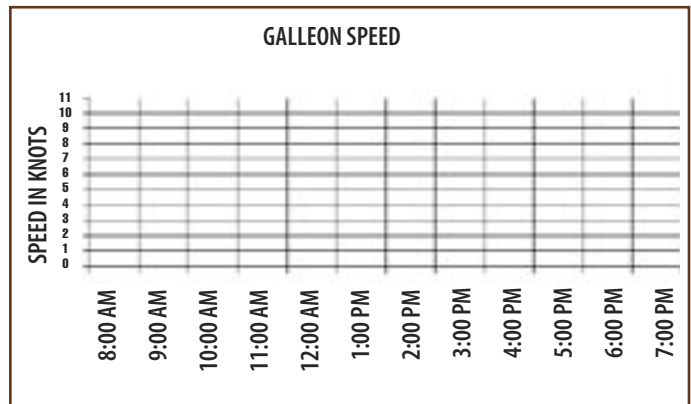
At 11:00AM the ship is going 6.6 knots what would the percentage be?

Round to the nearest tenth. _____

What is the fraction value? _____

Graph the speed data on x and y axis chart using this chart to graph the speed of the Galleon

8:00AM	8.2 knots
9:00AM	8.9 knots
10:00AM	10.0 knots
11:00AM	6.6 knots
12:00AM	7.3 knots
1:00PM	7.1 knots
2:00PM	6.3 knots
3:00PM	7.9 knots
4:00PM	9.0 knots
5:00PM	10.0 knots
6:00PM	9.0 knots
7:00PM	8.7 knots



ACTIVITY: Visual Arts**Recruiting Extreme Explorers**

Grade 4 Visual Arts: Artistic Perception 1.0 (1.3-1.5)

Recruiting Extreme Explorers was not an easy task for Juan Rodriguez Cabrillo. The unknown waters of the Pacific frightened many men. Tales of sea monsters, savage natives inhabiting far away lands, and fierce storms circulated the villages. Some men wanted to take on these challenges, yet others shied away from the danger.

Imagine that you were Cabrillo and you needed to recruit or encourage people to join your expedition. Make a poster encouraging people to become members of your extremely brave California exploration. Include catchy slogans, complementary colors, sailors, and the ocean environment.

PHOTO CREDIT: http://www.unexplainedstuff.com/images/geuu_03_img0549.jpg

SAILORS WANTED

Looking for the following qualities:

- + Scurvy Resistant
- + Knowledge of Knot tying
- + Adventurous Spirit
- + Combat Ready
- + Sails Well Under High Winds
- + Repair Savvy

ESSAY: New Spain's Franciscans

Adventure, strength, courage, honor, and determination pumped heartily in the veins of any Spanish man who ventured to the New World. The explorers, conquistadors, and sailors often get the credit for the glories of sailing the harsh Atlantic and Pacific Oceans, but many times we forget all about the Catholic order of “The Little Brothers” or the Franciscan padres.



PHOTO CREDIT: <http://www.historicaldocuments.com/StFrancisofAssisiSermontotheBirds.htm>

Like St. Francis of Assisi, the founder of the Franciscan Order, the padres took a vow of poverty and dedicated their lives to the Roman Catholic Church.

These dedicated men sailed across the Atlantic in full knowledge of the dangers and difficulties of the life ahead of them. Taking a post in the furthest borderlands of Spain, Alta California would mean seclusion and limited contact with the world as they knew it. Not only would they be secluded, they would be working with a group of natives with many diverse languages and dialects, and a culture and lifestyle that they would not understand or accept.

The Spanish padres viewed the native peoples of Alta California as uncivilized savages who were in desperate need of civilized society, agriculture, and most importantly the Christian faith. For many padres, their mission to Christianize Native Americans was sincere, yet the Spanish government expected much more than that.

Because of other European nations like Russia moving southward, the Spanish feared their claimed lands of Alta California would be taken from them. This new motivation caused the Spanish government to colonize the area. Spain colonized Alta California using the mission system. In order to transform the Native peoples of California into devout Spanish citizens the government sent padres and soldiers to designated areas along the California coast. Just two padres were assigned to each mission, and they would be responsible for both religious and governmental development. For instance, the padres' organized and completed building projects, taught religion, instructed Native Americans in trade skills, managed agriculture, and supervised soldiers.

Great responsibility weighed on the hearts and minds of these men. Franciscan padres managed much, and received little. Consider the weight and enormity of organizing and running both religious and civil duties.

ESSAY:**A Bit of Branding History****Brief History of Branding:**

Evidence of its beginnings branding developed in Egypt over 4,000 years ago. Hieroglyphics on Egyptian Tomb walls provide great evidence of its long lasting practice.

**Process of Branding**

During the spring and fall roundups, calves receive a brand. The calf or cow is held down with the help of a few people. The branding irons are heated in the fire and then placed on the hindquarter, hip, shoulder, or side of the animal. After placing the hot brand on the cow, the hair would be removed, forever leaving the brand design on the body.

Cattle Introduced to the New World

The Spanish brought the practice of cattle branding to New World. Cattle as well as other plants and animals were brought with the conquistadors and missionaries that framed the colonizatoin process.

California Mission Cattle Products

The California Missions heavily relied upon the products that came from the raising of cattle. Mission San Juan Capistrano used cattle for many different needs including:

Food products: Beef and dairy.

Tallow based items: Lye Soap, Tallow candles, lubricants, leather dressing.

Selling/Trading Hides (For further research see Richard Henry Dana).

Leather making: Saddles, bed frame ties, lariat (lassos), sandals, ropes, whips, clothing items etc.

Mission Branding Symbols:

Each of the twenty one Missions in California had an identifiable brand. Mission San Juan Capistrano is shown on the left. Most likely this brand design was created shortly after the Mission's foundation in 1776.

**Vaquero Training at****Mission San Juan Capistrano:**

Spanish vaqueros taught the Indians to ride, rope, and brand cattle. What we associate with cowboys—such as saddles, chaps, ropes, lassos, spurs, bandanas, and the rodeo comes from Spanish vaquero traditions that developed in what is today California, Texas, and Mexico.

Post Secularization Rancho Period:

After Mexico won its independence from Spain in 1821, the new government decided to do away with the Alta California missions. The Mexican government granted or sold the mission lands to Californio ranchos. Californio Rancho's increased land holdings and open trade with the United States boosted the cattle industry throughout California. Mexico's control over California, however, would be short lived. President Polk's declaration of war against Mexico over boarder discrepancies in Texas would ultimately lead to the United States acquiring California.

The End of the Mexican American War, The Gold Rush, and California Statehood 1850

The Mexican American war was officially ended with the Treaty of Guadalupe Hidalgo. The treaty forced Mexico to cede 525,000 square miles of land, which is known today as California, Nevada, Utah, Arizona and portions of Colorado and New Mexico in exchange for \$15 million dollars. Interestingly enough, just one month before the treaty was signed, gold was discovered

Continued on page 33

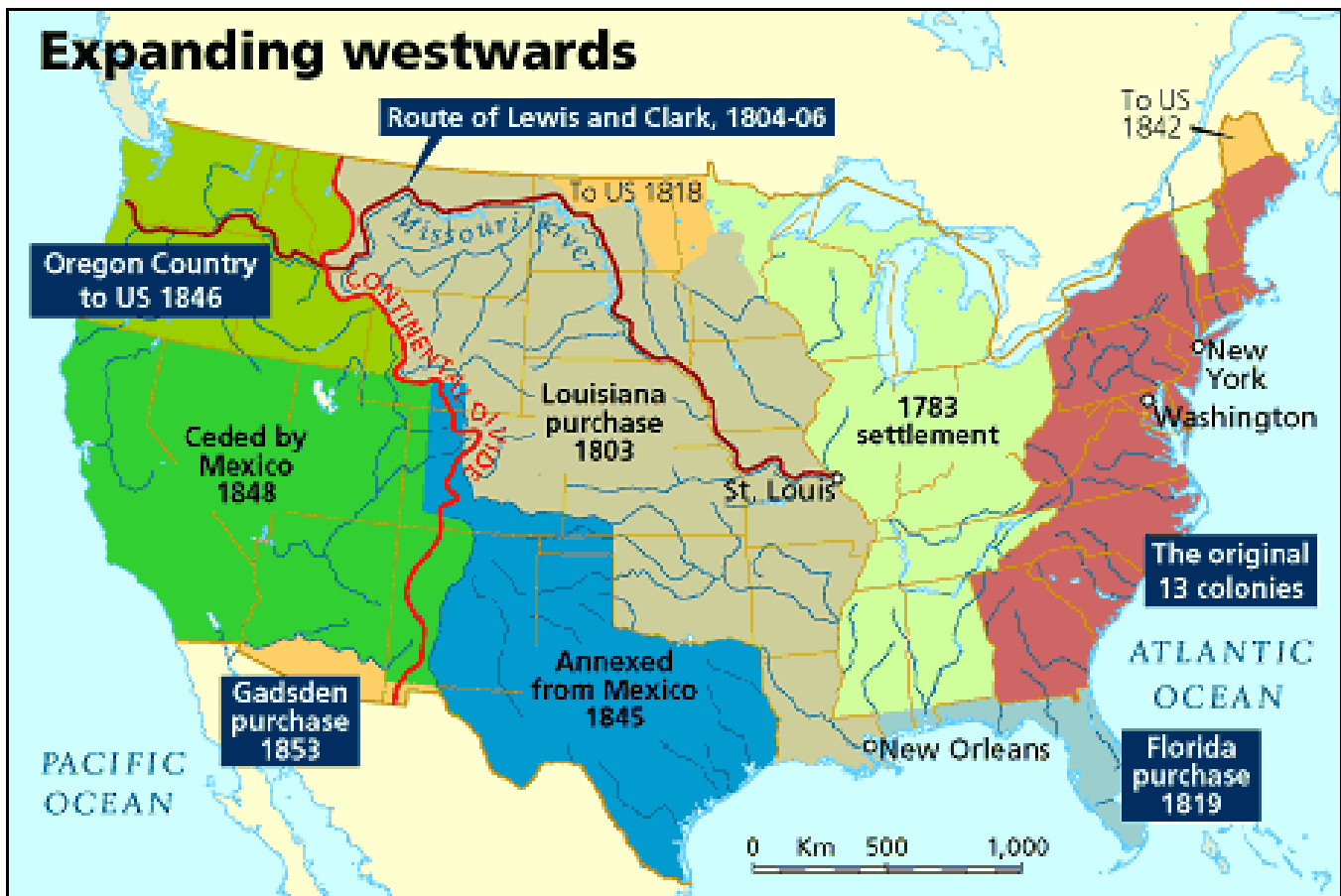
LESSON: Branding is Forever *(Continued)*

at Sutter's Mill. The cry for gold echoed all over the world. California and her early inhabitants would struggle with the screams of chaos and change.

By 1852, California the 31st state in the Union had seen an influx in population; approximately 250,000 miners had arrived from around the globe. Californios no longer claimed the majority governing body. American newcomers took their place, and often treated the Californios with disrespect and discrimination. Court battles and land rights went up to review boards and courts, many Californios lost land, and by the 1870s the Californios rancho empire was gone.

Cattle Industry during California Statehood

The Gold Rush gave a boost to the Southern California cattle industry at a time when demand for cow hides was decreasing. Ranchers sold their cattle to feed hungry miners living in the North. Yet the ranchers of Southern California soon faced hard times, by the early 1860s, years of severe flooding and drought caused tens of thousands of cattle to die. Because of the tragic circumstances many ranchers, in Southern California especially, lost a great deal of money, and were forced to sell their land.



LESSON:

Branding is Forever

Introduction:

The Spanish influenced California's landscape, architecture, and the romantic view of the ranching west. Vaqueros, or the Spanish cowboys, traveled the dusty California trails to herd and manage the huge cattle production of the California missions. Therefore, the symbol of branding provides a wonderful avenue to introduce California's cattle economy.

Objectives:

- Students will understand the importance of cattle in the Mission Economy.
- Students will understand how branding was used at Mission San Juan Capistrano.
- Students will be able to read and interpret brand symbols.
- Students will design and create their own brand.

Learners: The lesson is designed for upper-elementary grade students.

Content Standards: Social Science 4.2

Grade 4

4.2 Students describe the social, political, cultural, and economic life and interactions among people of California from the pre-Columbian societies to the Spanish mission and Mexican rancho periods.

5. Describe the daily lives of the people, native and nonnative, who occupied the presidios, missions, ranchos, and pueblos.

6. Discuss the role of the Franciscans in changing the economy of California from a hunter-gatherer economy to an agricultural economy.

7. Describe the effects of the Mexican War for Independence on Alta California, including its effects on the territorial boundaries of North America.

8. Discuss the period of Mexican rule in California and its attributes, including land grants, secularization of the missions, and the rise of the rancho economy.

Materials: marker, cardstock, paper bag

Procedure:

1) Ask students to describe how people use or benefit from cattle. Besides food products, many items we use everyday are made with inedible beef by-products. Some examples of usages in today's world include:

Food products: Beef, dairy (i.e. milk, cheese, and yogurt). Beef is consumed 77 million times daily across the United States. According to a recent research survey, more than 8.2 billion hamburgers were served in restaurants in 2001.

Household items: (From fatty acids) Candles, perfumes, soaps, cosmetics, car polishes and waxes, paint brushes, and photographic film.

Leather: Used in boots, shoes, luggage, footballs, furniture and car upholstery

Medicine: More than 100 medicines used by humans come from cattle.

Fertilizer: Manure is the most widely used fertilizer in the world.

2) Discuss the brief history of branding and the purposes of branding with your class. See essay page 32-33.

3) Complete the Make your Own Brand activity located on page 35.

4) Teach your class to read brands, and have students complete the worksheet on page 37 for homework or a quiz.

ACTIVITY: Make Your Own Brand

Getting Started

Procedure:

Step 1: Introduce your class to reading brand symbols. You may choose to use the attached worksheet. Pose a question, "Why did Mission San Juan Capistrano choose C-A-P Connected? Would your choice be different?"

Step 2: How would you create a brand for yourself or your family? Sketch out a few different ideas of what your brand may look like. For ideas research different brands used throughout the California missions at www.cdfa.ca.gov/ahfss/li/pdfs/CA_Missions.pdf or simply create your own brand based on where you live or what you enjoy doing.

Step 3: Once you have created your own personal brand, redraw it with chalk or white crayon on a piece of black construction paper.

Air Dry Clay Brand

Step 1: Cut air dry clay in to 1" x 1" blocks. One for each student.

Step 2: Have students draw their brand on a notebook paper (design must not be bigger than 2"), and cut out their symbol.

Step 3: Pass out clay. Have students flatten out their clay in order to make it big enough to place their brand symbol face down. Have students use a pencil or pen and trace the design on the clay. (You want the symbol to be backwards, so that it will print in reverse.)

Step 4: Have students use their fingers and pencils in order to push down on the negative space of their design and raise their positive space.

Step 5: Let the clay dry (24 hours).

Step 6: Take a paper bag and draw out a large animal skin shape. Crinkle the paper bag to give it a leather look.

Step 7: use your clay brand as a stamp by placing your brand into tempera paint or black ink and then stamp your "animal hide."

ACTIVITY:
How to Read Brands

Directions: Brands are read from left to right, top to bottom, outside to inside. Letters, numbers and characters can be used.



VBC CONNECTED



O BAR C BRAND



BAR T BRAND



ROCKING K BRAND



LAZY J BRAND



SWING 7 BRAND



BOX A BRAND



REVERSE R



K HANGING REVERSE D



CIRCLE M



L HALF CIRCLE



VD COMBINED

ACTIVITY:
Read That Cattle Brand

T

P

BQ

S

JHP

Y
