

U.S. HISTORY

Pre-European Monterey Bay Landscape

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PRE-EUROPEAN MONTEREY BAY LANDSCAPE

Summary:

The Pajaro Valley's physical features were much different when the native Calendarucs population occupied the region, a population whose hunting and gathering subsistence left behind little if any environmental footprint. Fresh water once flooded the central valley for much of the year and lakes dotted the upland areas; the spread of salt water into the Monterey Bay is a fairly recent ecological evolution. In the past, the highlands also were more forested and included vast stands of redwood groves.

Subject Area(s): U.S. History

Grade level(s): 11th grade

Lesson Duration: 5 class periods

CA Social Sciences Standard:

11.2 Students analyze the relationship among the rise of industrialization, large-scale rural-to-urban migration, and massive immigration from Southern and Eastern Europe.

Assessment: Teacher assessment of student work from: timeline, coloring activity and PV regional historical description (see Lesson outline #'s 1, 2, and 3)

Learning Objectives:

To introduce students to the natural environment of the Pajaro Valley and Monterey Bay so they have a basis for understanding the impact humans have had on the landscape.

Equipment, Materials, and Resources:

1. PowerPoint presentation (such as the document entitled "Geology and Cultural History") or overhead projection of scenes illustrating the depiction of physical evolution of the area and the lifestyle of the natives prior to European arrival, except for the last which suggests the missions:
2. A Natural History of the Monterey Bay, pages 28 and 40;
3. Monterey Bay Area: Natural History and Cultural Imprints, pages 10-12;
4. The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area, pages: 2, 17, 82, 92, 119, 129, 146, 165.
5. Blank, white 8½" x 11" copy paper, colored pencils, pens and/or crayons.
6. The Flood of 1995 (video of new footage following the breach of a Pajaro River levee)

Lesson Narrative/ Procedure:

Background Information:

The Monterey Bay began drifting northward from what is now the Los Angeles region about 30 million years ago. According to the current theory, the Central Valley was created when a shallow sea drained along a tectonic fault line. The receding water began gouging into the Monterey Bay canyon and the tremendous speed and force of the turbidity currents—created

by underwater rock slides and avalanches that push along sediment and scour canyon floor—further steepened the canyon walls. By the time humans appeared in the Pajaro Valley about 10,000 years ago, the canyon as it is known today was already formed. The bay's water level has continued to rise due to the continuously melting glaciers. The Pajaro River's basin was unrestrained until Europeans arrived and began creating flood control projects to divert water flow, including the current levee system completed in 1949. Rather than trying to tame the annual fresh water lakes and sloughs, the natives embraced the liquid deluge by learning to be amphibious. For much of the year they lived in a shallow but extensive water world. They also used fire to control brush and grass, creating an environment conducive to the growth of redwood, oak and pine forests which covered the valleys and now-barren highlands, which was to be used for agriculture and construction of industry and homes. The area was also home to a variety of animals now found only in northern climates, such as grizzly bears, elk, deer and antelope. Birds, reptiles and fish were plentiful around this time. It was a wild, wet and bountiful environment.

Day 1: Introduce tectonic plate theory, the collision of the Pacific and North American plates, and the northward movement of the Salinian Block, on which Monterey Bay and the Pajaro Valley are situated.

Student Discussion 1: Formation of the Monterey Bay canyon.

Student Discussion 2: Discuss the cycles of freeze and thaw experienced by the Earth over the eons, with the last ice age occurring about 15,000 years ago, with the accompanying lowering and raising of ocean water levels. Video resources such as National Geographic or Discovery Channel may provide relevant background prior to student discussions #1 & #2.

Day 2: Graphic Activity 1. Distribute graphic of the rise in water level in Monterey Bay. Students should color both maps to reinforce their understanding of the bay's geological changes.

Graphic Activity 2. Distribute graphics of the locations of the sloughs and lakes (if available) in the Pajaro Valley for students to identify and color. A walk to an adjacent wetland area would be appropriate as part of this element.

Optional Activity: Split class into three. Group 1 geographic illustrates PV 15,000 y.a.

Group 2 ----10,000

Group 3---- present

Keep poster for *Day 5* assessment

Day 3: Walk to location of sloughs and identify sloughs by name, directional location (N,S,E,W), and proximity of the valley and the Monterey Bay. An interpretive specialist (staff or docent from the Fitz WERC) should distinguish the difference between Elkhorn Slough and Watsonville (brackish water vs. fresh water). Before an interpretive walk, create three samples of different types of water. Provide a taste sample of salt water, fresh water, and brackish water for students to understand the difference. Also make visual observations (cloudy, clear, etc).

Day 4: Teacher Directed Lecture. Describe the Pajaro Valley region, from the first appearance of humans approximately 10,000 years ago until European arrival in 1769. Use Margolin's Ohlone Way as reference.

- Split off into groups of 4 (15 minutes) to share idea and, take notes.
- Individual groups share out as teacher records on white board
- Teacher presentation of transparencies from Ohlone Way illustrations (and/or video The Flood of 1995) to clarify and support student ideas.(15 minutes)
- Provide time to complete student graphics and teacher to assess student work.

Day 5: Guest Speaker. Invite a Native American Specialist to provide historical context of Ohlone or Calendarucs from Monterey Bay region. Provide time for question and answers.

Day 6: Carrousel Walk for peer assessment of student graphics (see Kagan, Cooperative Learning Strategies).

Use a "Carrousel Brainstorm" to view the three relevant time periods and address human challenges of the time. This involves three student groups, which circulate around posters (one poster per time period) and provide written comments on human challenges experienced during each time period.

Student summation. Each student individually writes on any of the following (3-5 paragraphs):

- Geographical changes
- Human challenges
- Observations of the sloughs
- Learning from this 5 day block

Lesson Outline:

1. Create a timeline depicting the dominant geologic changes, beginning with the northward drift of Monterey Bay 30 million years ago.
2. Coloring activity using maps of the bay to reinforce students' knowledge of the changing geographic shape of the bay at three intervals: 15,000 years ago, 10,000 years ago, and presently. Locations of sloughs and lake may be colored on a separate map (if available).
3. Describe the Pajaro Valley region, from the first appearance of humans approximately 10,000 years ago until European arrival in 1769, providing illustrations and graphics from The Ohlone Way and video The Flood of 1995 (if available).

References:

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