Santa Teresa County Park Historic Area

Teaching and Activity Guide

June 2011

SANTA CLARA COUNTY PARKS
www.parkhere.org

Designed and Developed by the Interpretive Staff of

Santa Clara County Parks & Recreation

July 2004, Revised June 2011

SANTA CLARA
COUNTY PARKS
AND RECREATION

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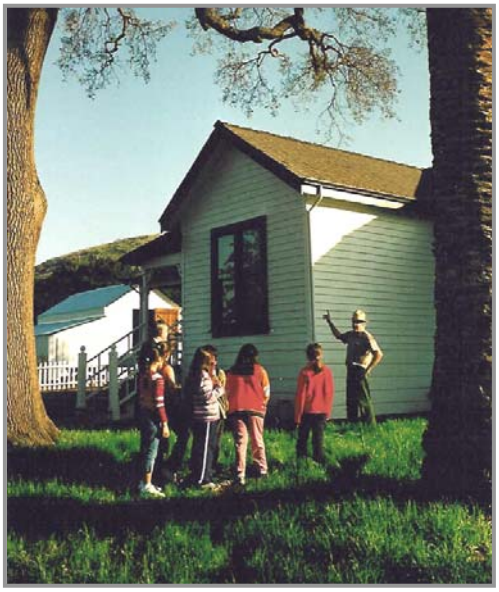
Dear Educator:

The Santa Teresa County Park Historic Area interpretive staff has prepared this teaching and activities guide to enhance your visit to the park. You may print any of these enclosed materials for educational use within your classroom.



Before bringing your class to the historic area, we suggest that you:

- Visit the site ahead of time to find and see the facilities.
- Complete the following pre-visit activities:
  - *Rancho Word Search*
  - *What's in a Label?* (Remember to bring the newly labeled water bottles with you.)
  - *Old Time Games*
  - *1900 Parlor*
  - *1900 Bedroom*
  - *1900 Kitchen*
  - *Jesusita's Chickens*
- Decide if you wish students to complete any additional exercises or readings before visiting. *Two Tall (but True) Tales of the Ran*cho and *Healing Waters of Santa Teresa Spring* are suggested.
- **Note to Teachers, Parents and Chaperones:** Please review *Old Time Games* as you may be asked to supervisor a portion of this activity while the Park Interpreter or Docent is leading the tour of the ranch house.

Directions to the Bernal-Gulnac-Joice Ranch House at Santa Teresa County Park Historic Area:

- From Highway 85, exit west on Cottle Road. Go left (south) on Santa Teresa Boulevard, then right on Camino Verde to dead end at Manila Drive. Turn left on Manila Drive and proceed to the bus area located on the right. Your Park Interpreter will meet you there.

What to bring:

- Bottled water (with Santa Teresa label attached) for each student
- Dried apricots – at least two dried apricot slices for each student
- Cell phone as no public phones are available
- Activity materials (as requested by Park Interpreter)
- Snacks or bag lunches (if staying for lunch)

Typical class-visit schedule:

- 10:00-10:30 a.m. – Tour of ranch house, chicken coop, barn/timeline, gardens, etc.
- 10:30-11:00 a.m. – Ranch games and snack break
- 11:00-11:30 a.m. – Hike through ranch grounds to Santa Teresa Spring
- 11:30-noon – Hands-on construction activities to be determined with Park Interpreter

You may call us at 408-226-5453 with any questions. We look forward to your visit.

Sincerely,

The Ranch Staff

SANTA CLARA COUNTY PARKS

Study Unit Goals

To introduce students to the Santa Teresa County Park Historic Area and the Bernal-Gulnac-Joice Ranch; to share an appreciation of the site as an example of California's history and development.

Quick Guide to California Content Standards

Santa Teresa County Park Historic Area's ***Teaching and Activity Guide*** strives to meet the California Department of Education Content Standards for the third and fourth grades in the following areas:

Activity	History-Social Science	English-Language Arts	Mathematics	Science
KWL Chart	3—Continuity and Change, 4—California: A Changing State			
Rancho Word Search	3.3.1, 4.2.8	Reading 3.1.4, 4.1.2		
What's in a Label?	3.3.2, 3.5.1, 4.3.4	Reading 3.1.4, 4.1.2		
Pre-Visit Readings: Old Time Games, 1900 Parlor, 1900 Bedroom, 1900 Kitchen, Jesusita's Chickens	3.3.1, 4.2.4	Reading Comprehension 3.2.0, 4.2.0		
Diseño	3.1.1, 4.1.5			
Bernal's Hacienda	3.1.2, 4.2.5, 4.2.8			
Bernal Family at Rancho Santa Teresa	3.3.1, 3.3.2, 4.2.5, 4.2.8			
A Brief History of Rancho Santa Teresa	3.2.2, 3.2.4, 3.3.0, 4.2.1, 4.2.8			
Pedro Bernal's Marl Mine, Marl Matching	3.1.2			Physical Sciences 3.1.g, Earth Sciences 4.5.a
Drying Fruit	3.5.1			Physical Sciences 3.1.f
Scrub-a-Dub Reading and Crossword Puzzle	3.5.1	Reading Comprehension 3.2.3, 4.2.2		Physical Science 3.1.g
Blue!		Word Analysis… 3.1.0, 4.1.0		
Three-Cent Bread	3.5.3		Number Sense: 3.3.3, 4.2.1	
Technologies Circa 1900	4.4.6			
Readings: Two Tall (but True) Tales; Healing Waters of Santa Teresa Spring; Hay and Haymaking; Eggs, Eggs, Eggs	3.3.1, 4.2.5	Reading Comprehension 3.2.0, 4.2.0		

Santa Teresa County Park Historic Area's **spring walk** and **tour of the Bernal-Gulnac-Joice Ranch House and surrounding areas** strive to meet the California Department of Education Content Standards for the third and fourth grades in the following areas:

Grade 3 – History-Social Science

Continuity and Change – Students in grade three learn more about our connections to the past and the ways in which particularly local, but also regional and national, government and traditions have developed and left their marks on current society, providing common memories. Emphasis is on the physical and cultural landscape of California, including the study of American Indians, the subsequent arrival of immigrants, and the impact they have had in forming the character of our contemporary society.

3.2.0 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).

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

3.3.2 Describe the economies established by settlers and their influence on the present-day economy, with emphasis on the importance of private property and entrepreneurship.

3.5.1 Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and in the present.

Grade 4 – History-Social Science

California: A Changing State – Students learn the story of their home state, unique in American history in terms of its vast and varied geography, its many waves of immigration beginning with pre-Columbian societies, its continuous diversity, economic energy, and rapid growth. In addition to the specific treatment of milestones in California history, students examine the state in the context of the rest of the nation, with an emphasis on the U.S. Constitution and the relationship between state and federal government.

4.1.3 Identify the state capital and describe the various regions of California, including how their characteristics and physical environments (e.g., water, landforms, vegetation, climate)affect human activity.

4.2.1 Discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.

4.2.3 Describe the Spanish exploration and colonization of California, including the relationships among soldiers, missionaries, and Indians (e.g., Juan Crespi, Junipero Serra, Gaspar de Portola).

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

4.2.8 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.

4.3.2 Study the lives of women who helped build early California (e.g., Biddy Mason)

Teacher Guide

KWL Chart

Applicable Content Standards

History-Social Science – Grade 3

Continuity and Change: Students in grade three learn more about our connections to the past and the ways in which particularly local, but also regional and national, government and traditions have developed and left their marks on current society, providing common memories. Emphasis is on the physical and cultural landscape of California, including the study of American Indians, the subsequent arrival of immigrants, and the impact they have had in forming the character of our contemporary society.

History-Social Science – Grade 4

California: A Changing State: Students learn the story of their home state, unique in American history in terms of its vast and varied geography, its many waves of immigration beginning with pre-Columbian societies, its continuous diversity, economic energy, and rapid growth. In addition to the specific treatment of milestones in California history, students examine the state in the context of the rest of the nation, with an emphasis on the U.S. Constitution and the relationship between state and federal government.

Materials

- Butcher paper, flipcharts, or designated white board space
- Marking pens

Directions

1. The KWL Chart functions as an advance organizer to provide initial focus and inquiry into the study of Santa Teresa County Park Historic Area. It should be started prior to the class' visit and tour of the site.
2. **KWL Chart:**
   - What I **KNOW**
   - What I **WANT** to learn
   - What I have **LEARNED**
3. Introduce this unit of study by drawing from students' prior knowledge and creating a classroom size KWL chart. Consider leaving the chart posted and adding to the **W** and **L** columns as you progress through the materials.

- Brainstorm the **K** column. *Ask: What do we already know about Santa Teresa County Park?* Use a round-robin technique if you like to allow everyone in the class an opportunity to add to the body of knowledge.
- (It may well happen, especially if you are not located near the Santa Teresa area, that students know very little, if anything, about the park. In this event, broaden your questions to focus more generally on the subject. Some examples: What do we already know about the Ohlone living in the South Bay area? What do we already know about the early California ranchos? What do we already know about the Bernal, Gulnac and Joice families?)
- As a class, generate ideas and goals for what students want to learn and add these to the **W** column.
- After each exercise/activity, ask for input and add student learnings to the **L** column.
- Then, go to the **K** column and check to see how accurate/inaccurate prior knowledge was. Make any necessary revisions so that statements are now correct.
- Next, go to the **W** column and see if the exercise/activity has addressed any items listed there. Ask if there are any items to add to the **W** column.

4. As you reach the end of the entire study unit, the KWL Chart may be used as part of an overall summary. Check the **W** column to make sure that all items have been addressed. If not, have the class generate a plan for any remaining items.
   - Can answers be found in the library, on the Internet, site tour, museums, community groups such as *Friends of Santa Teresa Park*, etc.?
   - Can items be assigned to small groups to research and then presented to the class?

Teacher Guide

Rancho Word Search

Applicable Content Standards

History-Social Science – Grade 3

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

History-Social Science – Grade 4

4.2.8 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.

English-Language Arts – Grade 3

Reading 3.1.4 Use knowledge of antonyms, synonyms, homophones, and homographs to determine the meanings of words.

English-Language Arts – Grade 4

Reading 4.1.2 Apply knowledge or word origins, derivations, synonyms, antonyms, and idioms to determine the meaning of words and phrases.

Materials

- *Rancho Word Search*

Directions

1. Distribute student worksheets
2. You may wish to review word pronunciation before students complete the word search.

Answer Keys (2 versions)

	Over	Down	Direction
AGUAJE	3	8	E
ARROYO	10	1	SW
CAMINO	10	12	N
DISEÑO	1	3	E
HACIENDA	12	3	S
LAGUNA	2	7	SE
OHLONE	7	4	W
PUEBLO	7	2	W
RANCHO	8	12	W
REATA	3	6	S

SPRING ..... 6 ..... 1 ..... SE
TULE ..... 2 ..... 12 ..... NE
VAQUERO ..... 8 ..... 4 ..... S

	1	2	3	4	5	6	7	8	9	10	11	12
1	T	R	B	D	W	S	Q	V	I	A	P	K
2	F	Q	L	B	E	U	P	H	R	A	N	J
3	D	I	S	E	Ñ	O	M	P	P	W	Y	H
4	D	E	N	O	L	H	O	V	I	G	J	A
5	X	N	H	C	L	Y	U	A	E	N	I	C
6	C	A	R	D	O	M	B	Q	Z	S	G	I
7	S	L	E	T	V	E	G	U	T	Q	U	E
8	L	E	A	G	U	A	J	E	L	N	O	N
9	B	M	T	C	E	E	X	R	C	I	N	D
10	N	U	A	L	U	O	D	O	H	M	O	A
11	Z	Q	U	X	M	N	C	S	V	A	G	F
12	S	T	O	H	C	N	A	R	M	C	N	B

Name _____

Rancho Word Search

These vocabulary words will help you better understand the early Californio history of Rancho Santa Teresa. Circle the words as you find them.

T R B D W S Q V I A P K
F O L B E U P H R A N J
D I S E Ñ O M R P W Y H
D E N O L H O V I G J A
X N H C L Y U A E N I C
C A R D O M B Q Z S G I
S L E T V E G U T O U E
L E A G U A J E L N O N
B M T G E E X R C I N D
N U A L U O D O H M O A
Z Q U X M N C S V A G F
S T O H C N A R M C N B

aguaje (*ah-GWA-hay*): watering place
arroyo (*ar-ROY-o*): dry creek bed or gulch
camino (*ca-MEE-no*): road
diseño (*dih-SEN-yo*): simple, hand drawn map or sketch
hacienda (*ha-see-EN-da*): large estate or farm
laguna (*la-GOON-a*): lake
Ohlone (*oh-LOW-knee*): Native Americans living throughout Santa Clara Valley
pueblo (*PWEB-low*): town
rancho (*RAN-cho*): ranch
reata (*ree-AH-tah*): a lasso or lariat
spring (*spring*): source of water coming from the ground
tule (*TOO-lee*): reed, bulrush
vaquero (*va-CARE-o*): cowhand or cowboy

Pedro Bernal's saddle and reata

Teacher Guide

What's in a Label?

Applicable Content Standards

History-Social Science – Grade 3

3.3.2 Describe the economies established by settlers and their influence on the present-day economy, with emphasis on the importance of private property and entrepreneurship.
3.5.1 Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.

History-Social Science – Grade 4

4.3.4 Study the lives of women who helped build early California (e.g., Biddy Mason).

English-Language Arts – Grade 3

Reading 3.1.4 Use knowledge of antonyms, synonyms, homophones, and homographs to determine the meanings of words.

English-Language Arts – Grade 4

Reading 4.1.2 Apply knowledge or word origins, derivations, synonyms, antonyms, and idioms to determine the meaning of words and phrases.

Materials

- Bottled water, 1 bottle per student
- Photocopies of page with labels

Directions

1. Make photocopies of the page with the labels for Santa Teresa Spring's water.
2. Tape the labels onto the bottles of water and bring with you when you visit the park.

MRS. YGNACIO BERNAL PROPRIETOR — PEDRO A. BERNAL MANAGER

Sanitary Drinking Water

FROM THE FAMOUS

Santa Teresa Springs

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PROMPT DELIVERY **RELIABLE SERVICE**

Stands for Homes and Offices, and Tilting Crates
for country trade furnished free.

HOURS FROM 8:30 A. M. TO 5:30 P. M.

Office, 404 S. Market St., cor. San Salvador St., San Jose, Cal.

(OVER) **PHONE, SAN JOSE 4668**

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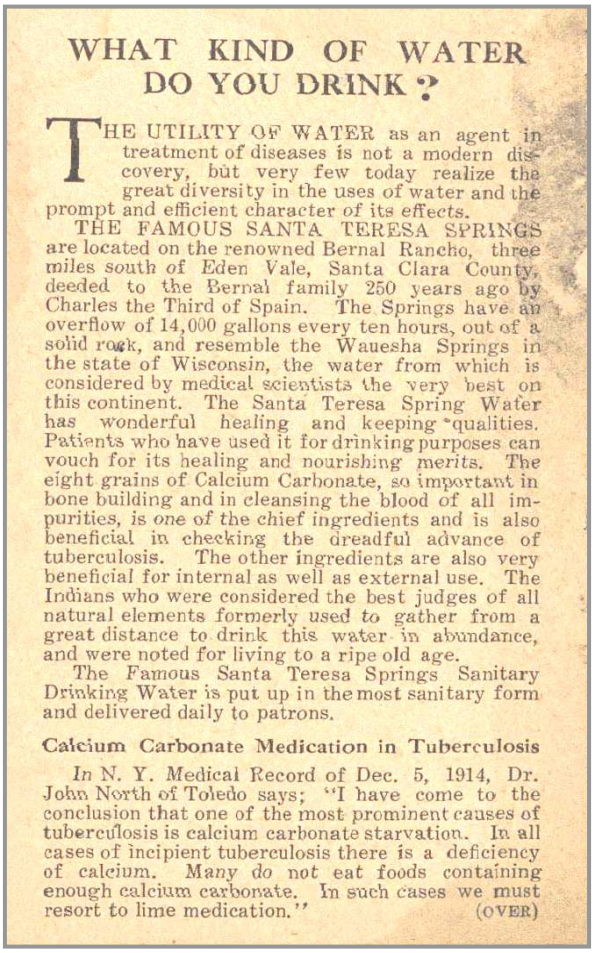
Reading

What's in a Label?



WHAT KIND OF WATER DO YOU DRINK?

THE UTILITY OF WATER as an agent in treatment of diseases is not a modern discovery, but very few today realize the great diversity in the uses of water and the prompt and efficient character of its effects.

THE FAMOUS SANTA TERESA SPRINGS are located on the renowned Bernal Rancho, three miles south of Eden Vale, Santa Clara County, deeded to the Bernal family 250 years ago by Charles the Third of Spain. The Springs have an overflow of 14,000 gallons every ten hours, out of a solid rock, and resemble the Wauesha Springs in the state of Wisconsin, the water from which is considered by medical scientists the very best on this continent. The Santa Teresa Spring Water has wonderful healing and keeping qualities. Patients who have used it for drinking purposes can vouch for its healing and nourishing merits. The eight grains of Calcium Carbonate, so important in bone building and in cleansing the blood of all impurities, is one of the chief ingredients and is also beneficial in checking the dreadful advance of tuberculosis. The other ingredients are also very beneficial for internal as well as external use. The Indians who were considered the best judges of all natural elements formerly used to gather from a great distance to drink this water in abundance, and were noted for living to a ripe old age.

The Famous Santa Teresa Springs Sanitary Drinking Water is put up in the most sanitary form and delivered daily to patrons.

Calcium Carbonate Medication in Tuberculosis

In N. Y. Medical Record of Dec. 5, 1914, Dr. John North of Toledo says; "I have come to the conclusion that one of the most prominent causes of tuberculosis is calcium carbonate starvation. In all cases of incipient tuberculosis there is a deficiency of calcium. Many do not eat foods containing enough calcium carbonate. In such cases we must resort to lime medication." (OVER)

The old claim on this label from Santa Teresa Springs Water Company that the water helps cure tuberculosis is false. Modern doctors use anti-bacterial drugs to treat the disease.

The Santa Teresa spring provided water for the Ohlone Indians who lived around it for thousands of years. Later, Jose Joaquin Bernal and his descendants used the spring to drink from and to water cattle, vineyards and orchards. Ignacio Bernal even used the spring waters to fill a basin and form the first man-made swimming pool in the Santa Clara valley.

Pedro Bernal (Jose Joaquin Bernal's great grandson) established the profitable Santa Teresa Springs Water Company around 1910. Jesusita Bernal, Pedro's mother, served as proprietor of the company – a job rare for a woman at the turn of the century. Spring water was collected in large glass jugs and sold until Pedro's death in 1935. Early newspaper ads boasted of the spring water's healing qualities.

Today, many people still drink bottled water sold at the local grocery store, but it's often shipped in from other states or even other countries. Santa Teresa spring water traveled only a few miles by horse-drawn cart before it was purchased by people in downtown San Jose.

Santa Teresa Springs water was collected and poured into large glass jugs such as the one on the right. The company also provided free stands and "tilting crates" that tipped to allow the water to be poured more easily. You'll be able to see an actual tilting crate and glass jug from the Santa Teresa Springs Water Company when you visit the Bernal-Gulnac-Joice Ranch.

Teacher Guide

Old Time Games, 1900 Parlor, 1900 Bedroom, 1900 Kitchen, Jesusita's Chickens

Applicable Content Standards

History-Social Science – Grade 3

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

History-Social Science – Grade 4

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

English-Language Arts – Grade 3

Reading Comprehension 3.2.0 Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies and needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources)…In addition to their regular school reading, by grade four, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade three, students make substantial progress toward this goal.

English-Language Arts – Grade 4

Reading Comprehension 4.2.0 Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies as needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources…In addition to their regular school reading, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information).

Materials

- Photocopies of all pre-visit readings listed above

Directions

1. Make photocopies of the readings.
2. We recommend these particular readings be completed pre-visit since students will be touring a furnished parlor, kitchen, and bedroom, visiting the chicken coop, and playing old time games on site.

Reading

Old Time Games

Children living at Rancho Santa Teresa had little time to play. Ranch life in the mid-to-late 1800s meant long hours doing chores such as tending to ranch animals, weeding the garden, picking vegetables, and helping with laundry, to name only a few tasks.

Ranch children played with pieces of string, bits of wood, corncobs, and old wagon wheels. A fence rail and a blanket could become an imaginary horse and saddle. A spare length of rope served as a lasso or a skipping rope.

Many things around the ranch could be turned into toys after the objects had outlived their original use. The blacksmith or village cooper (barrel maker) made **hoops** to hold wooden barrels together. When a barrel wore out, children used the hoops for games of rolling skill.

The object of a game of hoops was to roll the hoop along a designated course with a stick and be the first to arrive at the finish line with the hoop still standing. The catch was that you had to use the stick to move the hoop and not your hands; in fact, touching the hoop with a hand meant the immediate loss of the game.

Jumping rope was played mostly, but not exclusively, by girls. Richer families could provide corded jump ropes with handles while poorer children mostly used a length of rope. Both worked equally as well since the game depended on the skill of the jumper.

Rhymes were chanted while jumping to give a cadence or rhythm to the game. Here's an example:[1]

> "*ice cream soda – cherry on the top – who's your boyfriend/girlfriend – I forgot"*

A, B, C, D (and so on until the person misses a jump – this would indicate the letter of the boyfriend's or girlfriend's first name – repeat the alphabet for the last name)

By the 1890s, some shops in San Jose sold a variety of specially made toys. Even in smaller outlying rural communities, people could buy manufactured toys at a general store or order them from a catalog.

[1] Jump Rope Rhymes. 4 January 2003 <http://gameskidsplay.net/jump_rope_rhymes/>.

When you visit the ranch house, be sure to look inside the glass cabinet in the front entry of the house – here you will see two marbles, both found on ranch lands. **Marbles** was a game enjoyed by ranch kids, as it still is today. Children (and even adults!) have been playing with marbles since ancient times.

These boys are playing potsies.

Many marbles back in the 1800s were made of stone, pottery, clay and china. (Modern glass marbles did not appear until about 1860 when they were hand-made in Germany. Machine-made glass marbles didn't come to the United States until 1905.) Poorer ranch children who had no store-bought marbles used musket balls, nuts, or hard berries instead.

Children have had many names for the different kinds of marbles – taws, aggies, allies, cat-eyes, onionskins and swirls. Marble collections were always changing as kids won, lost and traded their marbles.

Shooting Marbles

In order to play marbles, you must first practice shooting.

Using one hand, place all your knuckles (except the thumb) on the ground. Position your shooting marble inside the index finger between the tip and the first joint. Secure the marble there with the tip and nail of the thumb. The object is to propel the marble by forcibly ejecting it from its nesting place with your thumb.

Some games don't require your knuckles to be grounded when shooting. Still other games require you shoot your marble from several feet above the ground!

A good marble player continually practices shooting.

Here are three traditional games you can play with marbles.

Potsies

This is the most well known and traditional marble game you can play. Each kid contributes a given number of marbles to the "pot" which is a large circle drawn on the ground. The pot marbles are arranged in cross-fashion inside the ring.

Shooting from outside the ring, the object is to knock the pot marbles out of the circle while keeping one's own shooter marble inside the ring. You get to keep every pot marble you knock from the circle. If the shooter rolls his/her marble outside the circle then the next player plays. The winner is the kid who gathers the most marbles.

The marbles pictured on this page are more than 100 years old. Today they are worth over $300.

A glass marble

Down the Well

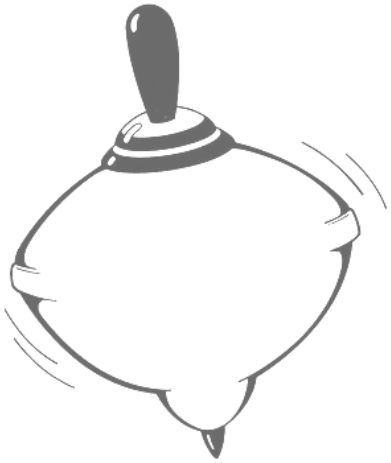
A one-foot wide hole is dug in the center of the playing field. Players attempt to get a marble as close as possible to the hole – the well – without going in. Whoever's marble comes closest without going in wins a marble from each player. Knocking your opponent's marble "down the well" is permitted.

A china marble

Nine Holes

This is similar to a game of miniature golf except that it is played with marbles. Kids construct a nine-hole, miniature golf course from materials at hand such as sticks, rocks and cardboard tubes. They then take turns shooting their marbles around, through and over the obstacles they have built. The first player to complete nine holes wins!

Spinning Tops

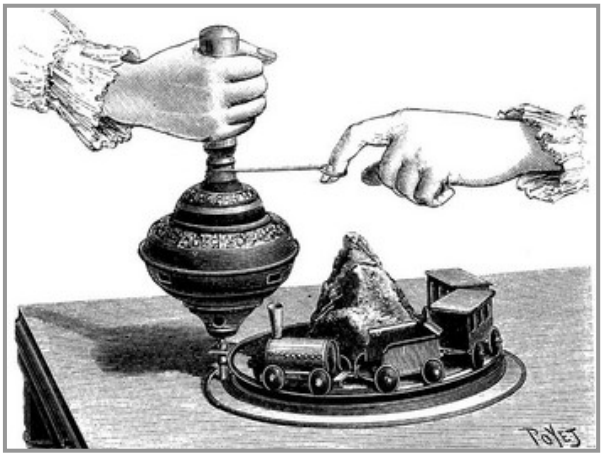


In the mid-to-late 1800s, ranch children played another favorite game – "Conqueror." After chores were done, the Bernal youngsters and others probably grabbed their favorite tops and set them twirling either on the ground (inside a dirt circle) or on top of an inverted barrel or washtub. The winner's top stayed spinning the longest or knocked the others out of the arena.

Variations of this game have been played for centuries. In fact, many school kids now participate in "battle top" or "Beyblade" competitions. The rules have not changed much from the original Conqueror game played on the ranch. The old tops, however, were lathed from wood and used a wound string for motion; modern Beyblades are formed from plastic and metal, spun with a push-button and use specialized arenas.

In many different cultures and countries, children and adults have played with tops. Villages in Elizabethan England, during the time of Shakespeare, often had a large top in the town square that villagers spun for exercise, to warm up on chilly mornings. A Dreidel is a top used to play a traditional Jewish Hanukkah game that dates back more than 200 years. The largest spinning top is in China and weighs over 600 pounds!

Tops have evolved from simple finger tops twirled by hand, to tops wound and spun with string, and later to tops with a handle to stabilize the top as the string was pulled. American children are familiar with plunger tops that spin when they pump a plunger up and down. Some of these tops are painted with scenes and bright colors and some play music. Germans created the first musical, or *choral* top, in 1907.



Did you know the spinning top was one of the first toys patented by the U.S. Patent Office? Today, you can choose from many kinds of tops – flip tops that pop over when gyrated, whipping tops set in motion by a lash, even tops with ball-bearing tips, bodies constructed of space-age materials, and light-emitting diodes and other electronics concealed inside.

Reading

1900 Parlor

"It was the family museum, 'whatnot' as centerpiece…(The parlor) might display an ostrich egg, baby shoe, shark's tooth, sea shell containing alleged ocean roar, stuffed bird, tintypes of bug-eyed relatives and glass domed case with a lock of Aunt Mary's curls."[1]

Some of the things you will see in the Bernal-Gulnac-Joice house parlor are:

- ***Antimacassar*** – Housewives placed these small, ornamental coverings on the backs and arms of furniture to protect the fabric from wear and dirt.
- ***Photographs of Relatives*** – Two photographs hung in the parlor show Cap Gulnac mounted on a horse and Patrick and Susan Gulnac Joice. A picture of Charles Gulnac, the man who built the ranch house, sits on the piano.
- ***Sofa*** – This sofa appears stiffer and perhaps less comfortable than furniture we may find in homes today.
- ***Singer Sewing Machine*** – This particular sewing machine was manufactured in New Jersey starting in 1910. Its treadle allowed women to power the machine by foot motion. The ranch wife and other women in the family made much of the family's clothing at home. Singer's "red S" shown at right became one of the best-known emblems in the world.

- ***Reed Organ and Violin*** – Often found in homes of this era, musical instruments provided interactive family entertainment before the coming of electricity and radios, phones, televisions, CDs, DVDs and so on. Guitars were also very popular with the Californios.
- ***Button Board*** – A Button Board game sits on a small table in the parlor of the Bernal-Gulnac-Joice ranch house. It is played by four persons, each of whom uses three buttons of different colors when moving around the board.

[1] Ralph Rambo. Pen and Inklings: Nostalgic Views of Santa Clara Valley. (San Jose: San Jose Historical Museum Association, 1984) 114.

Reading

1900 Bedroom

Some of the things you will see in the Bernal-Gulnac-Joice house bedroom are:

- ***Clothes Pegs*** – Notice that there were no closets in the house; clothes were often hung on the wall from pegs.
- ***Trunk*** – No closets meant trunks were used for storage of clothes and bed linens.
- ***Braided Rug*** –Women braided scraps of fabric into strips, which they sewed together by hand to make these rugs.
- ***Quilts*** – Pieced together from fabrics left over after making clothes, handmade quilts kept the sleeping family warm in the 1800s. Quilting was a favorite art in frontier homes and is still a popular hobby.

- ***Chamber Pot*** – A "toilet in a bowl," the chamber pot came in handy when a person did not want to walk outside at midnight and sit in a freezing outhouse. An unfortunate family member would wash the chamber pot and put it back under the bed in the morning.

- ***Cradle*** – Infants and very young children often slept in their parents' bedrooms in cradles such as this one. For a new baby, mom often sewed a special crib quilt, which copied an adult pattern in miniature.[1]

- ***Washbasin and Pitcher*** – Washbasins and pitchers were commonly found in bedrooms of the California Rancho Period. As there was no indoor plumbing or bathrooms, these served as a convenient place to wash up before going to bed without having to step outdoors.

[1] Quilts. 11 December 2002 <http://quilting.miningco.com/library/weekly/aa042797.htm>.

Reading

1900 Kitchen

"For Mama or Grandma, here their theme song could be 'Home on the Range.' Comparatively speaking it was a hot, inconvenient place of drudgery. Fortunately today's kitchen could not then be even imagined."[1]

Some of the things you will see in the Bernal-Gulnac-Joice house kitchen are:

- **Cast Iron Stove** – This cooking range burned coal, coke (carbon residue obtained from coal), or wood to cook food and heat the house. It had surface cooking plates and a baking oven.

  Unlike today's electric or gas stoves that can be turned on with a knob or switch, cast iron stoves were difficult to use. Each morning, ashes from yesterday's fire had to be removed. Then, a new fire had to be lit starting with paper or dry twigs as kindling. There were no thermostats or temperature controls so the ranch wife had to keep an eye on the stove all day long.

- **Illinois Icebox** – Several times a week, a man would deliver a large block of ice to place in the top of this kitchen icebox, manufactured in the late 1800s. Iceboxes kept perishable foods cold until mechanical refrigerators became widespread in the 1920s.

- **Mortar/Metate** – The ranch wife still used these ancient stone tools to grind corn, grains and other foods.
- **Butter Churn** – A household necessity, this type of wooden cylinder for making butter dates from the mid 1890s.
- **Kerosene Lamp** – These lamps, which used kerosene as a fuel, may be seen throughout the ranch house. Refined from coal, kerosene burned brighter/cleaner than the whale and lard oils used in earlier lamps.

[1] Ralph Rambo. Pen and Inklings: Nostalgic Views of Santa Clara Valley. (San Jose: San Jose Historical Museum Association, 1984) 115.

Reading

Jesusita's Chickens

Jesusita Bernal with her chickens

Jesusita Patron Bernal raised chickens near the ranch barns. Along with providing fresh eggs, Jesusita's chickens ate insects and other pests in her garden. When the hens stopped laying eggs, they were cooked for family dinner. The feathers from the chickens were often used in making bed pillows for the family.

When you visit the Bernal-Gulnac-Joice Ranch House, look for the Araucana chicken; she lays blue eggs!

Some interesting "chicken terms" and references:

- **Hen** – female chicken ***over*** 1 year old
- **Pullet** – female chicken ***under*** 1 year old
- **Brooder** – chicken currently laying and incubating eggs
- **Calcium** – chickens need lots of calcium (a mineral) in their diet to produce strong egg shells; oyster shells, mixed with their feed, provide that calcium
- **Gizzard** – chickens don't have teeth and use a gizzard (an internal organ) to grind their food into small digestible pieces
- **Grit** – small pieces of crushed rock offered to chickens with their feed; used in the gizzard
- **Feed** – made up of a variety of grains including corn, vegetable greens, protein (fish, worms, bugs, soybeans, milk)
- **Scratch** – grains that are fed separately from chicken feed

Origin of the Chicken[1]

The chicken is actually a descendant of the dinosaur and is better at running than flying. It was the first animal to be domesticated by man, even before the cat or the dog.

The Bankiya chicken that has its origins in India is considered the main ancestral line of today's chickens. Starting out from East Asia and the Mediterranean, it has reached the rest of the world. As a result of breeding over the centuries, there are now about 150 breeds of chicken.

[1] Swiss Eggs. 18 October 2002 <http://www.gallosuisse.ch/english/huhn_1_e.html>.

Reading, Activity

Phenakistoscope

In the parlor at the Bernal-Gulnac-Joice house, you may notice the colorful plate-sized disk displayed on the end table beside the sofa. This was a magical parlor toy that amused both adults and children alike in the late 1800s. This toy was kind of like a DVD movie or an animated computer game but it worked without electricity. (In fact, no homes in California had electricity in the 1800s.)

It was called a Phenakistoscope – Feen-A-KISS-Toe-Scope.

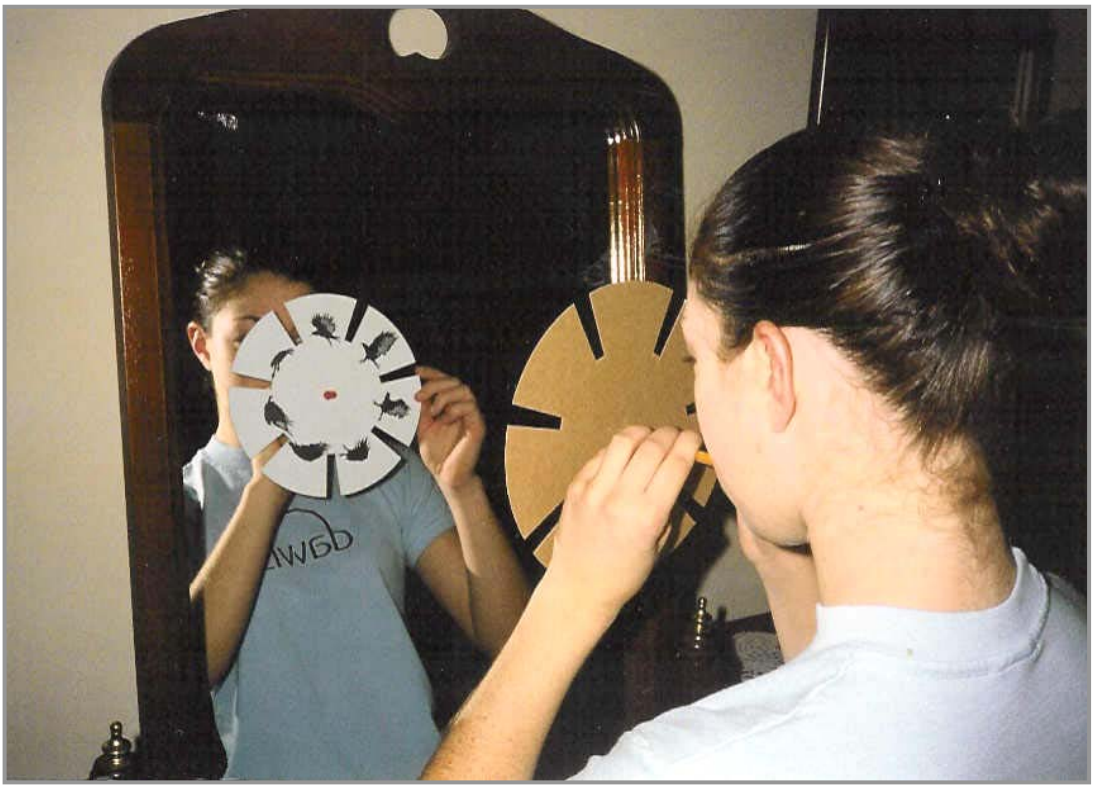
When a phenakistoscope was spun and its reflection was viewed in a mirror, the cartoons that were printed on it would move about as if they had come to life. How did this happen?

Persistence of Vision

The parlor toy works on a scientific principle known as "persistence of vision" which describes how our eyes and brain work together. The human brain does not see a light until a tenth of a second after the light is turned on. Then the image persists (lasts) about a tenth of a second after the light is turned off. The spinning slits on the phenakistoscope allow your eyes and brain to quickly see a series of still cartoons. Each image in the series shows the cartoon in a successive stage of movement. Each cartoon is presented to the eye before the previous cartoon fades out in your head. This tricks your brain into watching what it thinks is a moving cartoon!

Invention of the Phenakistoscope

Joseph Plateau invented the phenakistoscope in 1832. Dr. Plateau lived in Belgium and studied optics, the science of light and vision, including persistence of vision. Yet his lifelong studies may have cost him dearly. Many people believe his looking directly at the sun damaged his vision causing him to become partially and then totally blind. This blindness did not interrupt his studies, however, and he continued his work until his death in 1883.



To use the phenakistoscope, stand in front of a mirror as shown in this photo. Notice that it has been mounted on cardboard to make it more rigid and easier to spin.

A design for the phenakistoscope appeared as early as 1890 in the publication of The American Boys Handy Book, written by Daniel Beard, the founder of The Boy Scouts of America.[1]

Mr. Beard said of his wonderful book: "Its use and practical purpose are to stimulate the inventive faculties in boys." Indeed, his book contained 16 plans for various kites and hot-air balloons; it told pioneer boys how to construct a water telescope, stock a home-made aquarium, camp without a tent, construct a flatboat with a covered cabin, and so on.

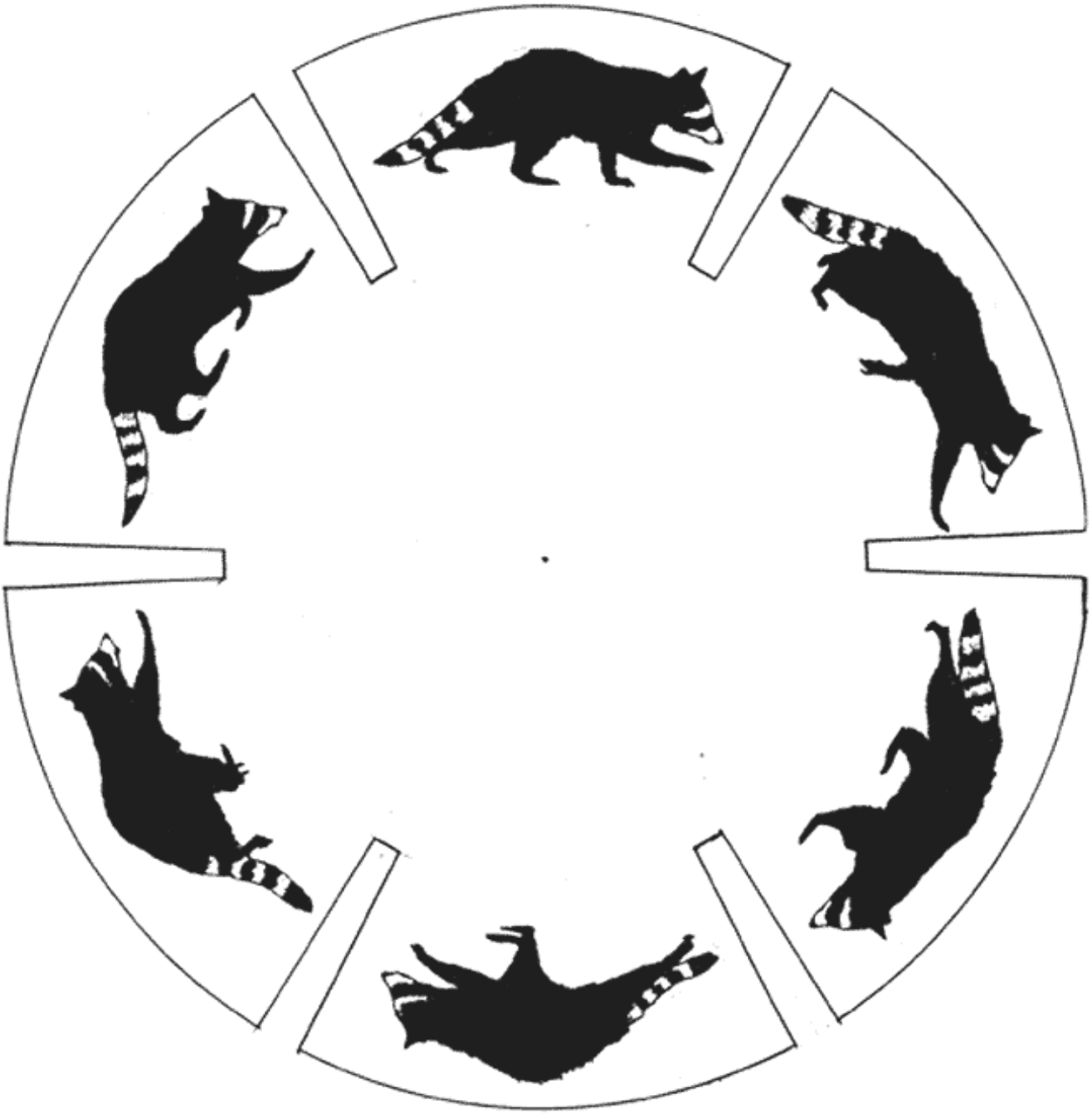
Describing the use of the phenakistoscope, Mr. Beard wrote: "The instantaneous photographs taken nowadays of people, horses and other animals in motion opens a new field for investigation, and one which, with the aid of the simple toy described, will be found very entertaining as well as instructive. With the magic disk, the reader can make birds fly, horses trot, men ride bicycles and reproduce every movement as correct as in nature. For young scientists these beautiful experiments will be found very entertaining."

But enough about your brain, your eyeballs and a Belgian scientist. See for yourself. On the next page is a phenakistoscope you can make yourself.

[1] Quotes on this page from Daniel C. Beard. The American Boys Handy Book. (Jaffrey, NH: David R. Godine, Publisher, Inc, 1890.)

Follow these instructions and watch the raccoon phenakistoscope come to life.

1. Copy the image onto special, heavyweight, card-stock paper.
2. Cut along the outline of the wheel. Make sure to cut out the slits. Use sharp scissors.
3. Insert a tack through the center dot on the printed side of your animation wheel and then into the eraser at the end of a pencil. Note: the pencil should be on the backside of the wheel.
4. Stand in front of a large mirror.
5. Hold the pencil firmly and spin the wheel.
6. Look through the slits in the wheel. The raccoon is running!



Follow the directions on page 20 to make the phenakistoscope below and watch Changarra moan for his gold.

A Terrifying Tale from the Rancho

A saddle maker named Changarra once crafted fine leather saddles for the Bernal family at Rancho Santa Teresa. When Changarra got ahead of what the ranch cowboys needed, he rode south to Santa Barbara to sell his extra saddles. Changarra returned with gold and silver coins, which he buried in a sack at a secret location on the rancho. Changarra had $10,000 hidden underground when robbers killed him while he slept outside on his way back from Santa Barbara. Changarra never spent cash on hotels, even if he was carrying gold!

Park visitors, who mistakenly loiter after the sun sets, sometimes hear poor Changarra moaning for his buried treasure. It seems the miser wants to take it with him to the other side!

Image from www.OpticalToys.com

Follow the directions on page 20 to make the phenakistoscope below and watch the spring's ghosts come to life.

Hauntings around the Santa Teresa Spring

Santa Teresa Spring's fresh water mysteriously runs from seams in a formation of stones. The Ohlone, local Native Americans who once lived in a nearby village, told a spirit story of the spring. The village had become sick and many Ohlone were dying. The village chief saw an apparition, a ghostly woman who struck the rock formation with her fists. Healing water flowed from the cracks. The tribe drank and was cured.

Today, neighbors call the pool below the spring "Dottie's Pond." They tell park staff it is named after a little girl who long ago drowned here. Some say Dottie's ghost can occasionally be glimpsed picking blackberries by the pond!

Image from www.OpticalToys.com

Butter-Making Reading

A butter churn sits on a kitchen table in the Bernal-Gulnac-Joice ranch house. Butter making began as far back as 9,000 B.C. Between the years of 1790 and 1893 more than 2,400 patents were filed for processes and tools used for churning cream into butter. Butter making ranked as one of the most common activities done worldwide. For millennia people have used milk from a range of mammals – including goats, water buffalo, reindeer, horses, camels, yak and, on the ranch, longhorn cows -- to create butter.

A wide variety of churns came in all shapes and sizes. These included barrel churns, paddle churns, Indian churns and box churns. Some early churns were fashioned in wood and earthenware, later in glass. For as many different churns, there were as many traditions and superstitions associated with butter making by various cultures.

Besides cultures having their own songs they sung while churning butter, they had specific ways in which they warded off 'evil spirits'. Nineteenth century ranchers in California might have hung up horseshoes, needles, knives and other metal objects to keep bad spirits from interfering with their cream turning into butter. Scottish folk were superstitious of witches ruining their butter and the English threw salt over the fire they used to heat the butter in order to neutralize evil influences.

Butter-making technology improved over time. Stirring butter with a stick on an animal skin in the hot sun quickly became unpopular. Using a plunger or paddle churn was found to be much easier, but still time consuming.

In the late 1800s the crank-arm churns were a popular size for most families. It would take several days to accumulate enough cream needed to fill the churn. Skimming the cream off the milk and keeping it at room temperature for a few days before churning would ferment it slightly and "ripen the flavor".

Churning itself was a process that took about an hour depending on the size of the churn. It took up to three gallons of milk to produce one pound of butter. At the Bernal rancho this tedious chore was usually done by the ranch wife or saved for one of the children. Another family member might have entertained the worker with a butter song or dance.

Butter-Making Activity

Each student will need the following materials to shake up their own tablespoon of butter.

1 ounce plastic cup with lid
Heavy whipping cream
Salt (optional)
Paper towel
Cracker or piece of bread
Knife or spreading stick
Boom-box music

Directions:

1. Fill the one-ounce plastic cup halfway with whipping cream, add pinch of salt (optional).
2. Snap lid on cup and wrap with paper towel.
3. Put fun 'shaking' songs on the boom box.
4. Vigorously shake the cup, in time with the music, for at least four minutes.
5. Halfway through the shaking, the mixture becomes so thick that it no longer sloshes around in the cup. It is now turned into whipped cream and is almost butter.
6. When you hear a 'rattling' noise inside the cup…stop and open it up.
7. Drain out the buttermilk and spread the small clump of butter onto your cracker!

Why do we shake milk to get butter?

Unprocessed milk direct from the cow contains butterfat in microscopic globules. These globules are surrounded by thin membranes made of protein molecules. These membranes prevent the fat in milk from pooling together into a single mass.

Shaking the cream milk damages these membranes. This allows the milk fats to conjoin, separating from the other parts of the cream, thus making butter.

String Puzzle Reading

If America had a “golden age of manipulative puzzles” then historians would say it came during the turn of the nineteenth century. The first of numerous patents for popular string puzzles and similar hands-on brain busters were issued around the end of the 1800s. Puzzles of many kinds intrigued both homesteaders and their children.

A string puzzle was easy to construct from materials found around the pioneer ranch. It was simply made, but devilishly hard to solve -- sometimes providing hours, if not weeks, of both idle frustration and entertainment for the ranch kids. Most often it challenged a player to untangle and release an object from a piece of tied-up string.

The Cinch Puzzle, so named because it resembled the cinch blocks used to tighten tent ropes during the Civil War, was one such device. The game’s victim tried to remove a wood button/bead and string from the block of wood without untying the string. A similar but much more complicated toy called The Puzzling Rings was described in great detail in *The Boys Own Book,* published in 1829.

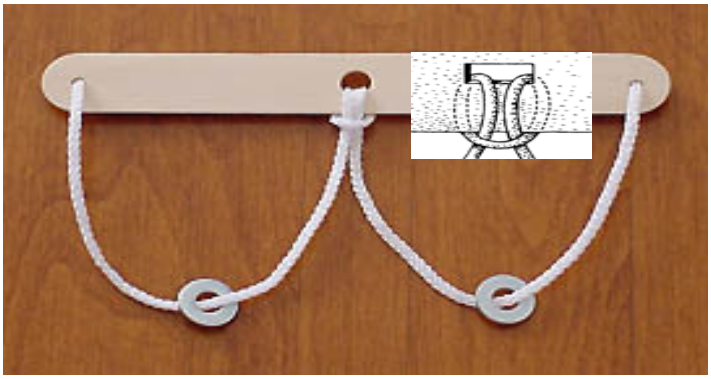
The most prevalent of all string puzzles in the late 1800s, however, was the Ox and Yoke. Instructions for making this toy, with a few variations, appeared in a number of period publications including *Godey's Ladies' Magazine* and *Peterson's Magazine*.

After reading here how to build and solve it, the puzzle’s solution might seem almost obvious. But consider yourself lucky. The puzzles displayed in the period magazines did not have the answers as part of the directions.

The object of the Ox-Yoke Puzzle is to move one ring from the string loop on one side of the puzzle to the string loop and ring on the other side of the puzzle without untying knots or cutting the string. Pioneer puzzle makers have claimed the two rings represent a devoted husband and his loving wife who have been separated by fate. You must bring the two rings (the couple) together. This is why it is also called “The Lover's Yoke."

Ox-and-Yoke Puzzle Activity

Each student will need the following materials to construct their own pioneer Ox-Yoke Puzzle.



A wooden tongue depressor
One foot or so of sturdy string
Two small metal washers

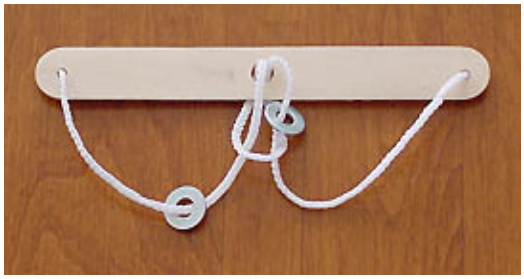
Construction directions:

Use a paper punch or drill to make three holes in the tongue depressor. String the cord and position the washers as shown in the picture and illustration on the right. Tie large knots at both ends of the string so it cannot be pulled out of the tongue depressor. Now figure out how to bring the washers together without untying the string!

Fun fact: A mind-bending branch of mathematics called topology, or "rubber geometry", was developed to study and define such things as string puzzles and anamorphic art (next page).

Pulling your hair out? Here's the solution in six simple pictures -- so look closely.

1



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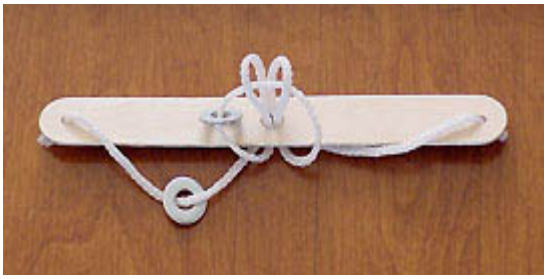

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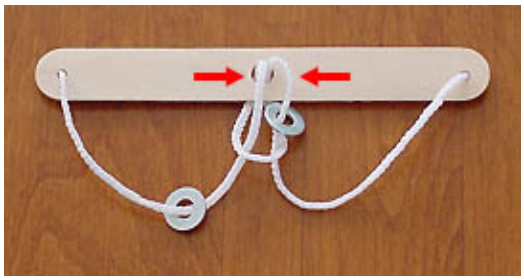

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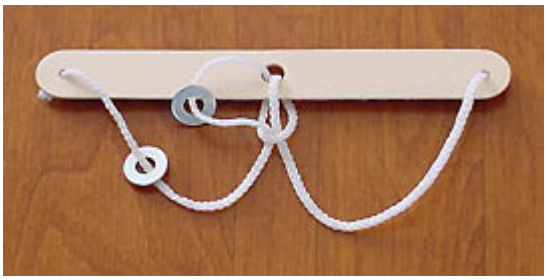

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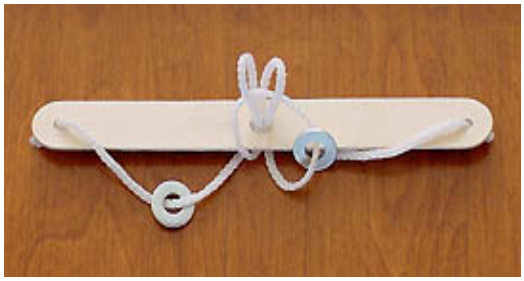

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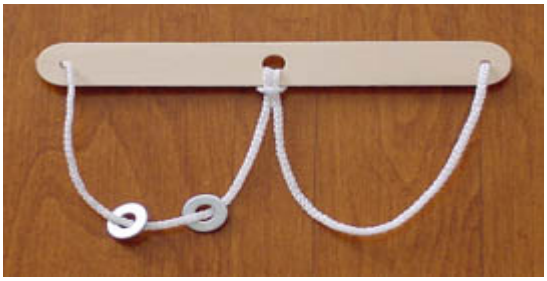
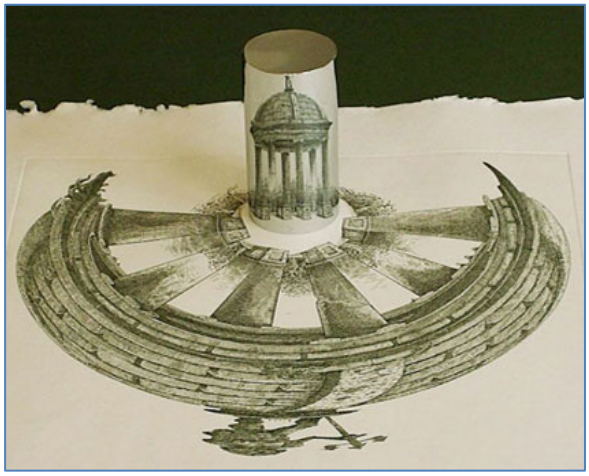


Anamorphic Art Activity



The distorted -- anamorphic -- picture was a very popular children's toy during the nineteenth century. Anamorphic art comes to life when viewed through a cylindrical "magic" mirror that transforms the distorted designs into delightful fanciful pictures.

Anamorphic art has had a long history, with roots in cultures from around the world, including China, England, France and the Netherlands. Distorted images were used for everything from amusing royalty to carrying secret messages and concealing political allegiances.

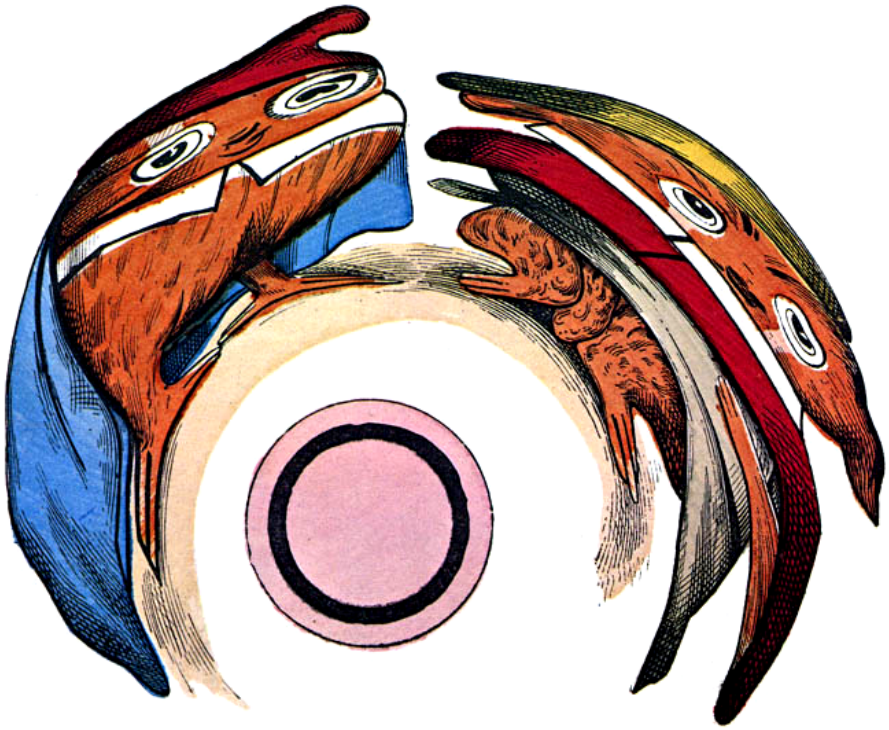
During the Victorian era, anamorphic art and viewers were popular parlor items. Eventually they became inexpensive toys for pioneer children in the western United States. A viewer and example artwork are on display in the Bernal-Gulnac-Joice Ranch House parlor.

You will need the following tools and materials to make a "magic" mirror and view the examples of anamorphic art on pages 24-25:

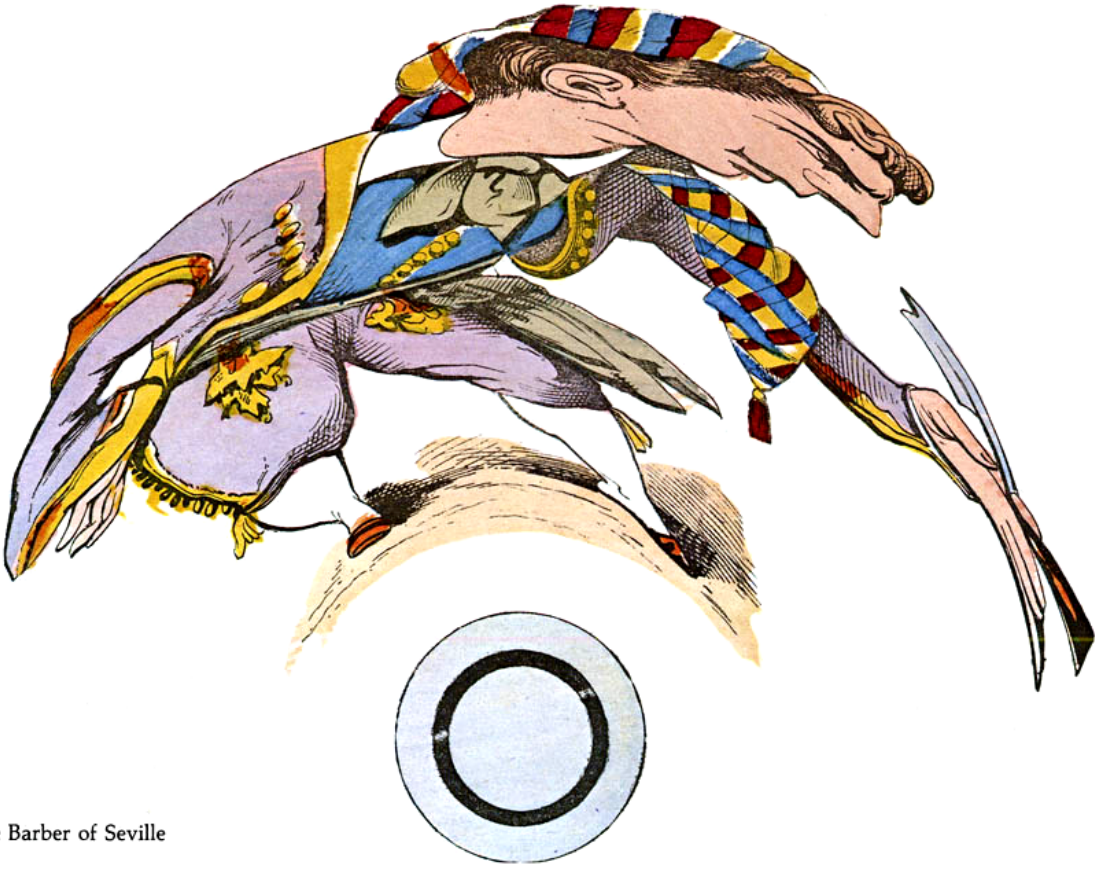
Scissors
Scotch tape
A sheet of reflective silver Mylar (can be purchased from a craft store)
Empty tube of toilet tissue
Anamorphic art images (see next pages)

Directions:

1 Cut the Mylar into a 5" by 7" rectangle.
2 Wrap Mylar around the tissue tube and tape closed
3 Place cylindrical Mylar mirror over shaded circle on anamorphic art
4 Look at reflection of distorted art in the cylindrical mirror

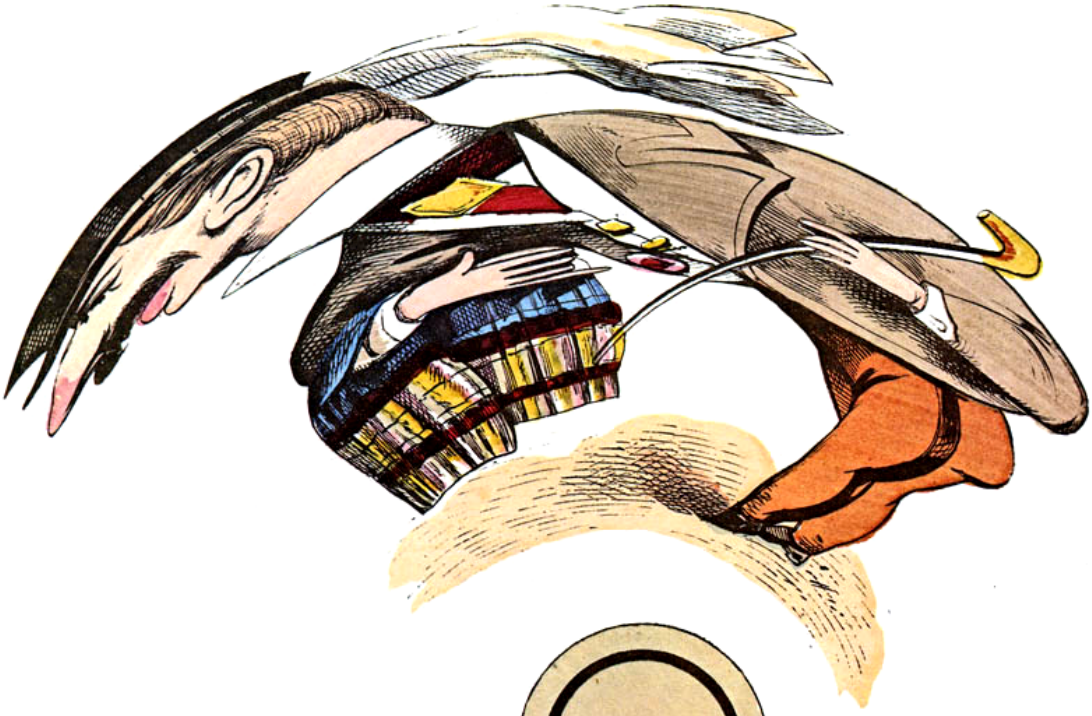


Two Owls with Liberty Caps of the French Revolution

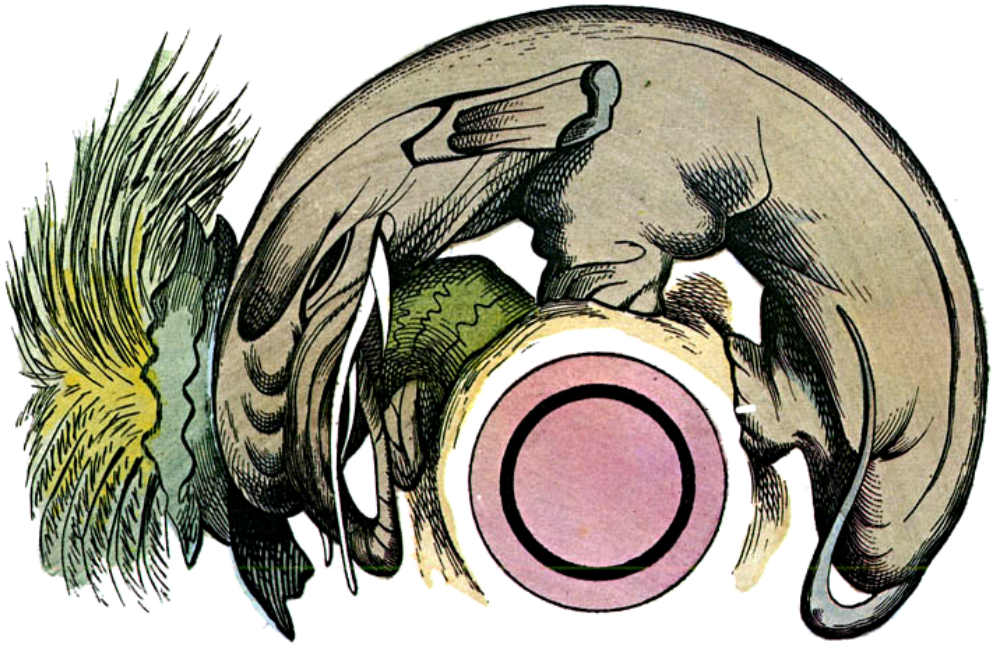


Figaro, the Barber of Seville

Images from "The Magic Mirror - An Antique Optical Toy" by McLoughlin Bros. Dover Publications 1979.



An English Gentleman



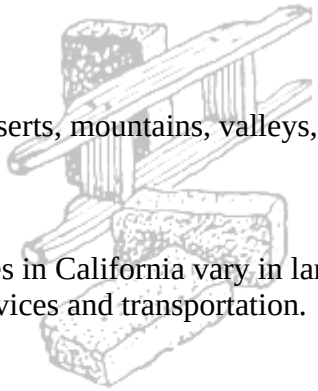
An Elephant

Images from "The Magic Mirror - An Antique Optical Toy" by McLoughlin Bros. Dover Publications 1979.

Teacher Guide

Diseño

Applicable Content Standards



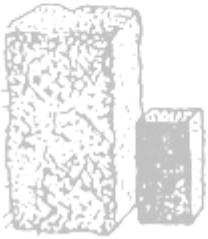
History-Social Science – Grade 3

3.1.1 Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes.

History-Social Science – Grade 4

4.1.5 Use maps, charts, and pictures to describe how communities in California vary in land use, vegetation, wildlife, climate, population density, architecture, services and transportation.

Materials



- Photocopies of the *Diseño*
- Possible discussion areas and questions:

Directions

1. Make photocopies of the worksheet and distribute to students for completion.
2. The *Map Analysis Worksheet* may be used with the diseño worksheet.
   - "The word 'adobe' refers to one of three things: a particular type of soil, a brick made from that soil, or a structure made from those bricks…The bricks were made from adobe soil, or clay. The thick, lumpy clay was mixed with sand and straw and left to dry and harden in the sun. The then hard bricks were stacked to make walls, with openings left for doors and windows. A roof was added to keep the structure dry, plaster was added, and the stack of bricks was transformed in a structure – an adobe."[1]
   - Ask: Looking at the diseño, why do you think Jose Joaquin Bernal chose this spot for his rancho? (Santa Teresa Spring provided year-round water; additional aguajes to provide water for livestock; close to El Camino Real – easier travel to and from Santa Clara, San Jose and Monterey; neighbors nearby – Augustin Narvaez; etc.)

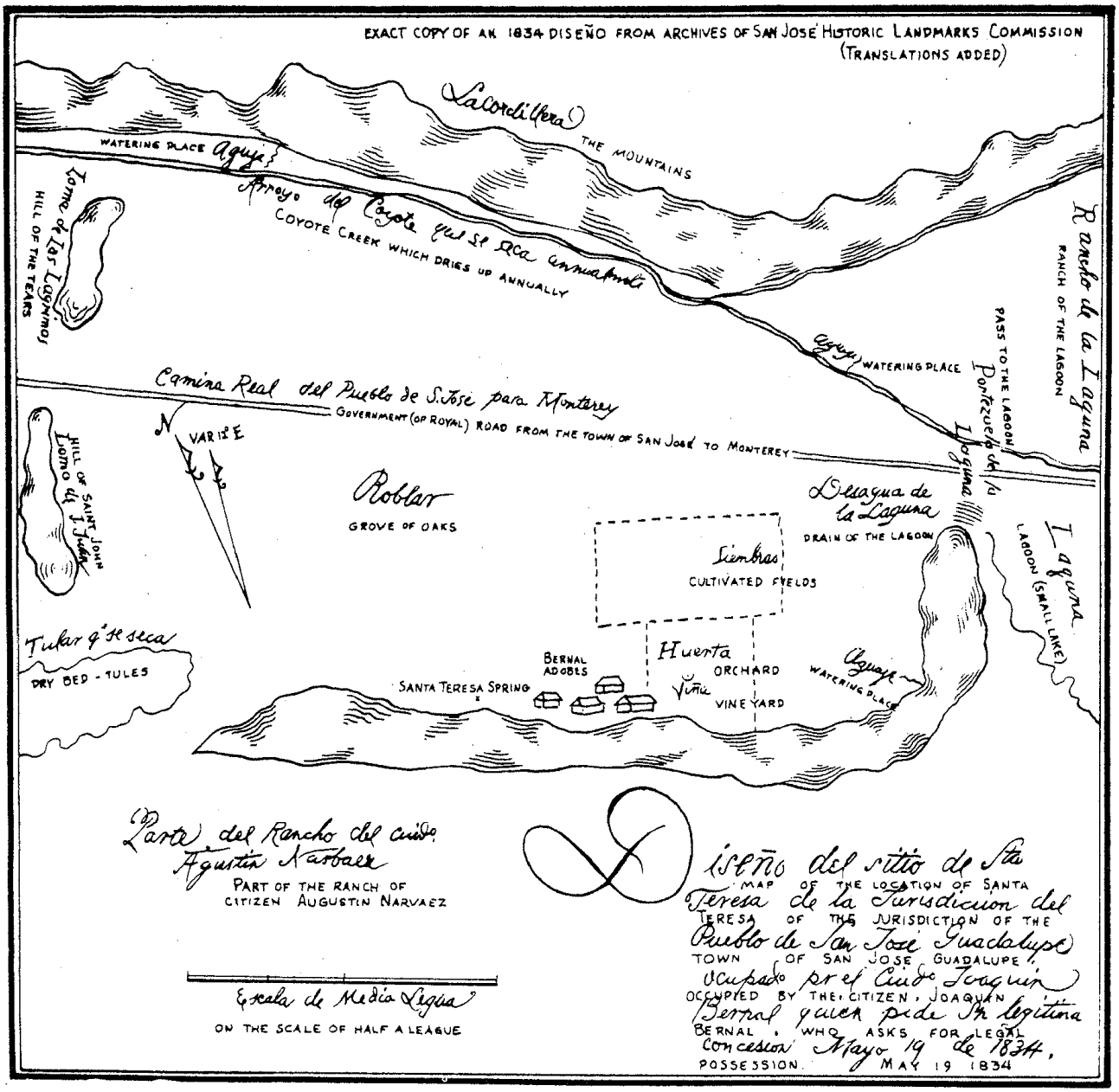
Answer Key – (Please point out the compass located on the left center of the diseño.)

1. four
2. Santa Teresa Spring near bottom center, 3 aguajes (watering places) scattered across map, laguna (small lake) middle right, Coyote Creek across top
3. northwest-southeast
4. cultivated fields and vineyard orchard near middle
5. Augustin (last name: Narvaez)
6. 1834

[1] James P. Delgado and Christopher C. Wade. How California Adobes Were Build in the 1830s. (San Jose: n.p., 1978) ii.

Name _____

The Diseño



1. How many adobes are shown on the diseño? _____ Color them red.
2. Locate the Santa Teresa spring, the aguajes (watering places), the laguna (small lake), and Coyote Creek. Color all these blue.
3. Color El Camino Real gray. In what general direction does it run here? _____
4. Outline the cultivated fields, and vineyard/orchard in green.
5. What was the **first** name of the Bernals' neighbor to the south? _____
6. When was the original of this diseño drawn? _____

Map Analysis Worksheet[1]

Name _____

1. Type of Map (Check one):

_____ Raised relief	_____ Topographic	_____ Political
_____ Contour-line	_____ Natural resource	_____ Military
_____ Bird's-eye view	_____ Artifact	_____ Satellite photograph/mosaic
_____ Pictograph	_____ Weather	_____ Other _____

2. Unique Physical Qualities of the Map (Check one or more):

_____ Compass	_____ Notations	_____ Title
_____ Handwritten	_____ Scale	_____ Legend (key)
_____ Date	_____ Name of mapmaker	_____ Other _____

3. Date of Map: _____

4. Creator of Map: _____

5. Where was the Map produced? _____

3. Map Information:

   A. List three things in this map that you think are important:

      1. _____
      2. _____
      3. _____

   B. Why do you think this map was drawn? _____

   _____

   C. What evidence in the map suggests why it was drawn? _____

   _____

   D. Write a question to the mapmaker that is left unanswered by this map_____

   _____

   _____

   _____

[1] From Map Analysis Worksheet, U.S. National Archives & Records Administration. 27 May 2004 <http://www.archives.gov/digital_classroom/lessons/analysis_worksheets/map.html>.

Teacher Guide

Bernal's Hacienda

Applicable Content Standards

History-Social Science – Grade 3

3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).

History-Social Science – Grade 4

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

4.2.8 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

- Photocopies of *Bernal's Hacienda*
- Photocopies of *Map Analysis Worksheet* if desired

Directions

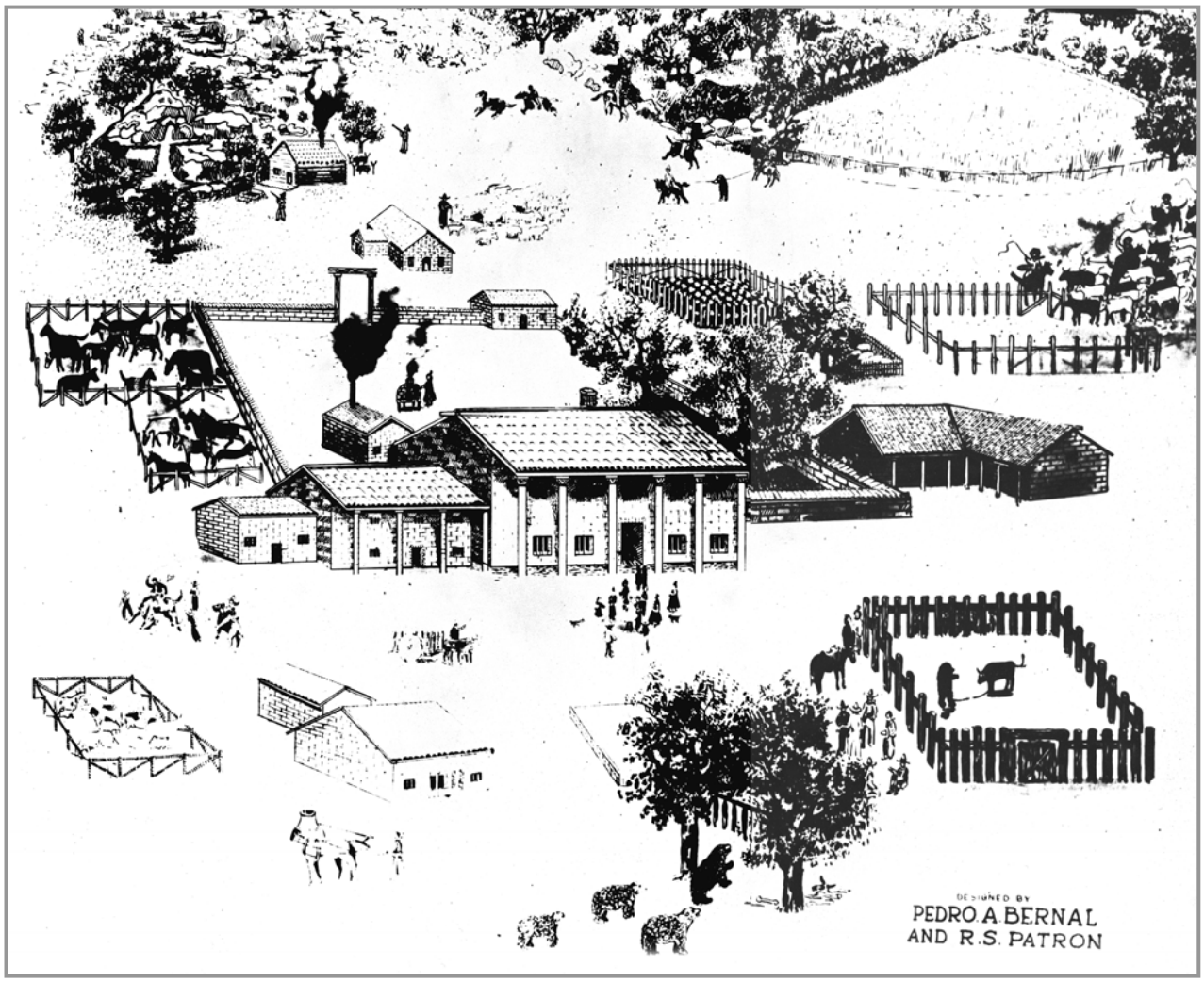
1. Make photocopies of the *Bernal's Hacienda* student worksheet and distribute for completion.
2. Possible discussion areas and questions:
   - Discuss bear-bull fights, how the grizzly is now extinct in California.
3. The *Map Analysis Worksheet* may be used with the diseño.

Answer Key

1. – circle around grizzly bear in lower right corral.
2. – Pedro
3. – three
4. – large adobe roof colored red
5. – three
6. – cattle in upper right corner colored brown
7. – cross in upper left of picture colored blue

Name _____

Bernal's Hacienda



1. Draw a black circle around the grizzly bear that is chained to a fighting bull.
2. What was the first name of the Bernal who helped design this picture? _____
3. Look for the vaqueros lassoing a grizzly. How many men are trying to capture this bear? _____
4. Locate the big adobe where the Bernal family lived. Color its roof red.
5. Count the number of corrals that contain cattle. _____
6. Find cattle being driven into a corral. Color these animals brown.
7. Find the cross. Color it blue. (The cross is at the spring, which was considered a spiritual place by the Ohlone and Bernal family.)

Bernal Brand and Photos

Applicable Content Standards

History-Social Science – Grade 3

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

3.3.2 Describe the economies established by settlers and their influence on the present-day economy, with emphasis on the importance of private property and entrepreneurship.

History-Social Science – Grade 4

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

4.2.8 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

- Photocopies of *Bernal Brand and Photos*
- Photocopies of the *Photograph Analysis Worksheet* if desired

Directions

1. Make photocopies of the student worksheet distribute for completion.
2. Sources of related information:
   - **Online Link:** See Web de Anza <http://anza.uoregon.edu/> for pictures, maps, documents, calendars, and supplementary resources related to Juan Bautista de Anza and his expeditions.
   - **Online Link:** For pictures of other cattle brands see Cattle Brands of California Missions <http://www.cdfa.ca.gov/ahfss/li/>.
3. The *Photograph Analysis Worksheet* may be used to further explore the family photos included in this topic as well as any other photos in this teaching guide.

Reading

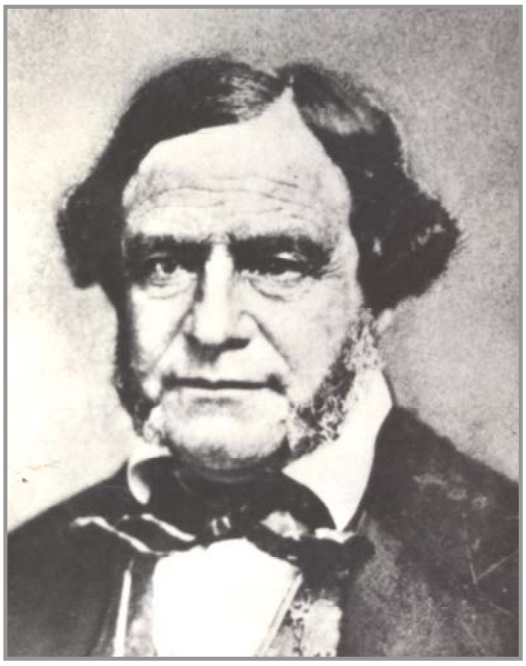
Bernal Brand and Photos

As a young teenager, **Jose Joaquin Bernal** and his family came to California from Mexico with Captain Juan Bautista de Anza in what has come to be called the Anza Expedition of 1775-76. The Anza Expedition brought approximately 200 people from Sonora, Mexico to Monterey, California by an overland route to settle a Spanish colony in northern California. In time, several of these settlers would help found the San Francisco Presidio (military base) and Pueblo (city) de San Jose.

Jose Joaquin Bernal grew up in San Francisco but as an adult settled in Pueblo San Jose before moving to Rancho Santa Teresa around 1826. Here he built adobes, started an irrigation system, planted fields and a vineyard, and raised thousands of cattle on the rich grasslands. Jose Joaquin was formally granted ownership Rancho Santa Teresa by the Mexican government in 1834.

No known drawing or painting exists of Jose Joaquin Bernal and photography was not yet developed. This is the cattle brand used by Jose Joaquin. Each rancher in what was to become California had his own branding iron that was required to be listed in the libro de registro (book of registry) and no one could adopt or change a brand without the permission of the governor of Mexico.[1]

Bruno Bernal, son of Jose Joaquin, was a member of the District Militia of the Pueblo of San Jose. Although he owned Rancho Alisal (now the city of Salinas) and shared Rancho El Valle de San Jose (now the city of Pleasanton) with two of his brothers and a sister, he continued to live for many years on Rancho Santa Teresa where he managed its businesses and interests, cared for his aged mother, and raised his many children.



Bruno Bernal

Ygnacio Bernal was born in the same adobe house as his father, Bruno, and was one of the first students at nearby Santa Clara University. An expert linguist, he spoke four languages and was described as having an "imposing appearance, kindly disposition, lovable nature."[2]

[1] Frances L. Fox. Luis Maria Peralta and His Adobe. (San Jose: Smith-McKay Printing, 1975) 84.
[2] Eugene T. Sawyer. History of Santa Clara County California with Biographical Sketches. (Los Angeles: Historic Record Company, 1922) 408.

Ignacio Bernal

Ygnacio managed operations on the rancho for his father and is credited with planting the first large-scale orchard in the area. Ygnacio also began mining operations on Rancho Santa Teresa and produced flasks of quicksilver (mercury) that were carted over the Santa Teresa Hills to the mines at New Almaden.

Jesusita Patron Bernal married Ygnacio in 1860. Rancho wives were central to the running of the rancho. Jesusita bore Ygnacio nine children, tended the chickens, ensured there was clean laundry, supervised meal preparation and entertained visitors, whether they were staying for a long visit or just passing through. It was a busy life.

Jesusita Bernal

Following the death of her husband, Ygnacio, Jesusita began the Santa Teresa Springs Water Company in 1910 with her son, Pedro Bernal. This was a most unusual move for a woman at the turn of the century, but Jesusita had a fine business sense and played an active role in founding and running the company as its proprietor.

Pedro Bernal

Pedro Bernal, the son of Ygnacio and Jesusita, attended the Oak Grove public school and then Santa Clara University as his father had done. Pedro developed many of the rancho's businesses including the quicksilver mine, the marl mine and fertilizer company as well as managing his mother's interest in the bottled water company. He built the shrine at the Santa Teresa spring in memory of his mother.

Pedro Bernal died in 1935, shortly after building Teresita Vista, his home that still stands across from Bernal Intermediate School on Ignacio Avenue in San Jose, CA.

Photograph Analysis Worksheet[1]

Name _____

Step 1 Observation *What I See…*	**Step 2 Interpretation** *What I Infer…*	**Step 3 Investigation** *What I Want to Research…*
▪ How would you describe the person or people in this photo? – age, clothing, facial expressions, economic or social status, relationships to each other? ▪ How would you describe any objects in the photo? ▪ What is the time of day and season of the year? ▪ What is the setting? What is in the background of the photo? ▪ Do you think this photo is posed or candid?	▪ Why do you think this photo was taken? ▪ Why do you think this particular photo survived over the years? ▪ How do you think the photograph was used in the first year after it was taken? ▪ Do you think this photo could be considered a legitimate historic document? Why or why not?	▪ What questions do you have about the photograph? ▪ Where could you go to find answers?

Why do you think this photograph was taken?_____

_____

List something the photograph tells you about life in California when it was taken._____

_____

Describe how the photograph makes you feel._____

_____

[1] Questions compiled from worksheets given in American Memory: Historical Collections for the National Digital Library, The Library of Congress. 2 June 2004 <http://memory.loc.gov/ammem/ndlpedu/lessons/media.html>.

Teacher Guide

A Brief History of Rancho Santa Teresa

Applicable Content Standards

History-Social Science – Grade 3

3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).

3.2.4 Discuss the interaction of new settlers with the already established Indians of the region.

3.3.0 Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land.

History-Social Science – Grade 4

4.2.1 Discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.

4.2.8 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

- Photocopies of *A Brief History of Rancho Santa Teresa*

Directions

1. Make photocopies and distribute to students.
2. May be used pre- or post-visit to discuss the long history of the Rancho Santa Teresa area. Possible additional discussion areas and questions could include:
   - What do you think life would be like for an Ohlone child your age living in the village near Santa Teresa Spring? What are some of the foods you would eat? (acorns, deer, rabbit, miner's lettuce, quail, salmon and trout, chia seeds, etc.) Do we eat any of these foods today?
   - What do you think it would be like for a Californio child your age on the rancho? What do you think some of your chores would be on the old rancho? (collecting eggs from the chicken coop, helping pick fruit from the orchard, weeding crops in the family's kitchen garden, carry wood for the stove, haul water from the spring, empty chamber pots, clean manure from the barn stalls, round up chickens into the coop for the night, feed and water the animals, milk the cows, etc.)

Reading

A Brief History of Rancho Santa Teresa

Q. Who were the first people to live in the Santa Teresa area?

A. The Muwekma Ohlone Indians lived in this area for thousands of years before the arrival of the Europeans. Archaeological evidence suggests that a large village was located near Santa Teresa Spring for more than 3,000 years. Since the spring was ever flowing, the village would have had a reliable water source. The Ohlone hunted game in the hills and fished in nearby lakes and streams for food. Also, their village was in a good location for trade with other tribes.

Q. How did Jose Joaquin Bernal come to establish Rancho Santa Teresa?

A. Jose Joaquin Bernal came to California as a teenage "pobladore" (settler) in 1776 with his family as part of the Juan Bautista de Anza expedition. He grew up in San Francisco but had moved to San Jose by 1805. In his sixties, Jose Joaquin moved his family near Santa Teresa Spring, about ten miles south of the Pueblo de San Jose. The Mexican government formally granted Jose Joaquin Bernal this land, a total of 9,647 acres from the Santa Teresa Hills to Coyote Creek. By 1834, Rancho de Santa Teresa included a vineyard, orchard, fields and 5,000 head of cattle with an arena for bear and bull fights. In 1837, Bernal died, leaving 78 dependants, with the estate to be divided equally among his thirteen children and wife.

Q. Where did the name "Santa Teresa" come from?

A. Rancho de Santa Teresa was named by Jose Joaquin Bernal. He heard an Ohlone legend that credited a female spirit for creating today's Santa Teresa Spring and thereby saving an ancient tribe from disease. Bernal assumed the spirit of the Indian legend to be Santa Teresa de Avila and so named the spring and rancho for the saint.

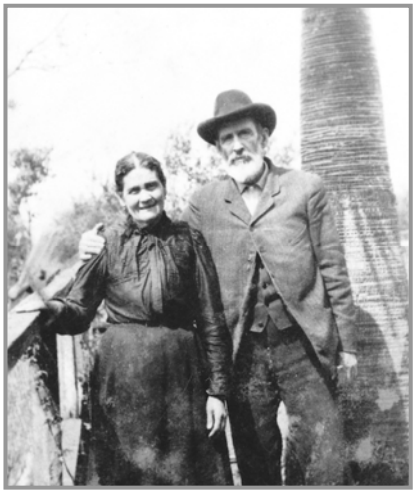
Q. What happened to Rancho Santa Teresa when California became part of the United States?

A. Once California became part of the United States in 1848, Mexican and Spanish land grants were considered invalid until certified by a U.S. court. In 1853, Agustin Bernal, the son of Jose Joaquin Bernal, petitioned for the Rancho Santa Teresa grant. It was confirmed by the court, but for only 4,460 acres. During the land grant hearings, as with many of the ranchos of California, ranch lands were sold to pay legal fees. By the 1870s, Rancho Santa

Teresa had been narrowed down to 400 acres belonging to another of Jose Joaquin Bernal's sons, Bruno Bernal. Bruno moved to his Rancho de Alisal in Monterey County in 1855 leaving the Santa Teresa to his sons Ygnacio, Francisco and Antonio.

Q. What was Ygnacio Bernal like?

A. Ygnacio, born at the rancho in 1841, was a well-known and respected man in the valley. Educated at the Santa Clara College (now called Santa Clara University), Ygnacio managed the ranch. His brother Francisco and other Bernal descendants had sold off most of the original rancho. Ygnacio, however, lived at the ranch and planted one of the first orchards in the area. During this time, he bought back several parts of the original rancho including the first Bernal home site. Ygnacio was also an expert linguist who spoke four languages.

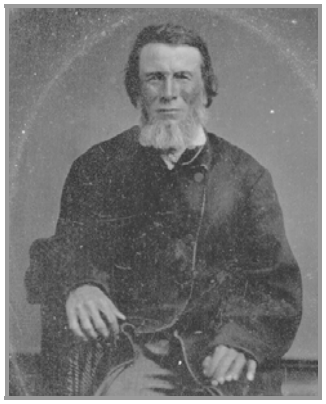


Jesusita and Ygnacio Bernal

Q. Who managed the rancho after Ygnacio?

A. Ygnacio Bernal died in 1906, leaving the property to his widow, Jesusita, and his children. His son Pedro initiated a number of businesses at the ranch including the Santa Teresa Springs Water Company (with Jesusita), the Bernal Quicksilver Mine, and the Bernal Marl Fertilizer Company, all established in the 1910s. Pedro died in 1935 leaving no children.

Q. How did the Bernal-Gulnac-Joice ranch house get its name?



Carlos Maria Gulnac

A. Ygnacio's sister, Rufina **Bernal** married Carlos Maria **Gulnac**, and in the mid 1800s a house was built on the rancho lands for their family. Their daughter, Susan Gulnac, married an Irishman named Patrick **Joice**; the Joices lived in this house and continued ranching. So, to answer the question, the ranch house was named after the Bernals and their descendants who lived there.

Patrick Joice and Susan Gulnac Joice

Teacher Guide

Pedro Bernal's Marl Mine

Applicable Content Standards

History-Social Science – Grade 3

3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).

Science – Grade 3

Physical Sciences 3.1.g Students know that when two or more substances are combined, a new substance may be formed with properties that are different from those of the original materials.

Science – Grade 4

Earth Sciences 4.1.g Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation (the rock cycle).

Earth Sciences 4.5.a Students know some changes in the earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.

Materials

- Photocopies of *Pedro Bernal's Marl Mine* and *Marl Matching*

Directions

1. Make photocopies (back-to-back?) and distribute to students for completion.
2. Possible discussion areas:
   - **Online Link:** See <www.miamisci.org/ph/> (Miami Museum of Science) for excellent discussion questions and lesson ideas on pH.
   - **Online Link:** See < http://www.rocksandminerals.com/rockcycle.htm> for discussions of differences of rocks and minerals, types of rock, four layers making up the earth and an interactive map on the rock cycle.
   - **Calcium Carbonate[1]:** "Calcium carbonate ($CaCO_3$) is one of the common compounds of calcium. Chalk, marble and limestone are all forms of calcium carbonate. Calcium carbonate is used to make white paint, cleaning powder, toothpaste and stomach antacids, among other things."

[1] It's Elemental: Calcium. 2 June 2004 <http://education.jlab.org/itselemental/ele020.html>.

Answer Key

3	microbe	1) calcium carbonate
10	erosion	2) firmly packed together
8	pH	3) a microscopic (very tiny) organism
1	$CaCO_3$	4) Williams Patent Crusher and Pulverizer
7	fertilizer	5) crumbly deposit made of calcium carbonate and clay
11	Pedro	6) produced by nature, not synthetic or man-made; natural
6	organic	7) substance used to enrich soil
5	marl	8) a measurement of a substance's acidity or alkalinity
2	compacted	9) area near Rancho Santa Teresa
4	marl masher	10) gradual wearing away of rock or soil
9	Edenvale	11) Ygnacio's son

Reading

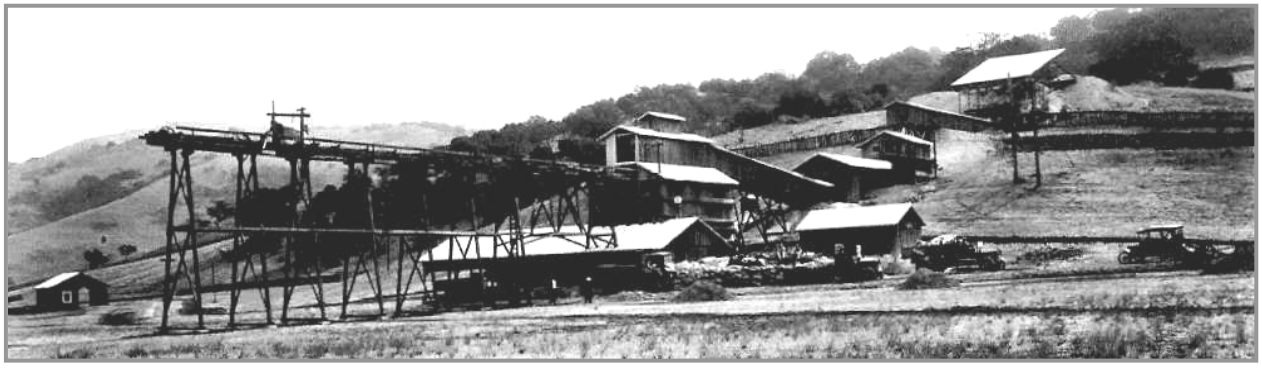
Pedro Bernal's Marl Mine

The pulverizer crushed two tons of marl per hour.

Marl is a crumbly, off-white substance made of clay and calcium carbonate ($CaCO_3$) and is often formed from the erosion of landlocked shells and rocks during weathering. As these rocky substances erode, the particles can eventually become compacted together to form marl.

As a child, Pedro Bernal (Ygnacio's son) noticed decomposing shells in the hills behind his home at Rancho Santa Teresa. Years later he visited England's marl pits where a shell and lime mixture was mined for fertilizer. Upon returning home, Pedro found his boyhood hills to contain 100 acres of this high-quality fertilizer. The deposit was 200 feet thick, enough material to manufacture 40 tons of crushed marl a day for 80 years.

In 1915, Pedro created Bernal's California Lime Marl Fertilizer Company, offering a much-desired commodity in a valley of expanding agriculture. Eight men worked the limestone quarry during the dry season. In the mine, a motorized Williams Patent Crusher and Pulverizer smashed the marl at a rate of two tons per hour. The workers were pleased with the efficient machine because it never clogged, even when the pulverized marl was slightly moist. Men sacked the marl at the site, then hauled it by horse team/truck to the nearby town called Edenvale where it was transported to farmers. Business thrived.



Bernal's California Lime Marl Fertilizer Company arose from Pedro's childhood discovery.

Farmers value marl as a fertilizer for lime-deficient soils and as a soil conditioner for sandy soils. The calcium carbonate in marl works well as a fertilizer to enrich the soil and adjusts the pH, making soil more hospitable to microbes called decomposers. These microbes rot organic materials in the soil, thus releasing nutrients to growing plants.

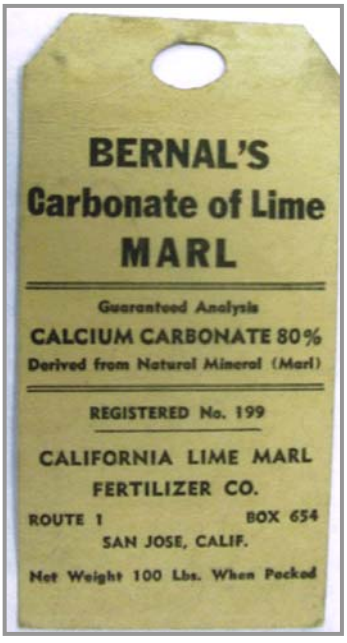
Name _____

Marl Matching

Marl Matching: *Match the words in the first column to the best available answer in the second column.*

_____ microbe	1) chemical formula for calcium carbonate
_____ erosion	2) firmly packed together
_____ pH	3) a microscopic (very tiny) organism
_____ $CaCO_3$	4) Williams Patent Crusher and Pulverizer
_____ fertilizer	5) crumbly deposit made of calcium carbonate and clay
_____ Pedro	6) produced by nature, not synthetic or man-made; natural
_____ organic	7) substance used to enrich soil
_____ marl	8) a measurement of a substance's acidity or alkalinity
_____ compacted	9) town near Rancho Santa Teresa
_____ marl masher	10) gradual wearing away of rock or soil
_____ Edenvale	11) Ygnacio's son

Marl is a crumbly, off-white substance.



Tags were tied to marl bags.

Teacher Guide

Santa Teresa History Review

Applicable Content Standards

History-Social Science – Grade 3
As they apply to specific readings and student worksheets covered in the review questions

History-Social Science – Grade 4
As they apply to specific readings and student worksheets covered in the review questions

Materials

- Photocopies of *Santa Teresa History Review*

Directions

1. Make photocopies of *Santa Teresa History Review* and distribute to students for completion.
3. May be used as a unit review or when finalizing the KWL chart.

Answer Keys

Vocabulary Matching: See *A Brief History of Rancho Santa Teresa; The Bernal Family at Rancho Santa Teresa, Two Tall (but True) Tales from the Rancho; Pedro Bernal's Marl Mine, Healing Waters of Santa Teresa Spring.*

4	archaeology	1) story that is not easy to believe
7	orchard	2) a journey
5	adobe	3) written request for action from the government
2	expedition	4) the study of historic remains
1	tall tale	5) sun-dried brick made from earth and straw
9	linguist	6) liquid mercury
3	petition	7) area of land where fruit trees are grown
6	quicksilver	8) fertilizer mined at Rancho Santa Teresa
8	marl	9) person who speaks several languages

Rancho Santa Teresa Timeline: See *A Brief History of Rancho Santa Teresa.*

5 Jesusita and Pedro Bernal started the Santa Teresa Water Company.
4 Ygnacio Bernal planted orchards when the ranching business slowed down.
1 The Ohlone were the first to live at Santa Teresa.
2 Jose Joaquin Bernal moved to the area about 1826 and ran 5,000 head of cattle.
3 Agustin Bernal petitioned a US court to certify the Santa Teresa land grant.

Name _____

Santa Teresa History Review

Vocabulary Matching: Match the words in the first column to the best available answer in the second column.

_____ archaeology	1)	story that is not easy to believe
_____ orchard	2)	a journey or trip, voyage; usually long
_____ adobe	3)	written request for action from the government
_____ expedition	4)	the study of historic remains
_____ tall tale	5)	sun-dried brick made from earth and straw
_____ linguist	6)	mercury; a mineral that is liquid at room temperature
_____ petition	7)	area of land where fruit trees are grown
_____ quicksilver	8)	fertilizer mined at Rancho Santa Teresa
_____ marl	9)	person who speaks several languages

Agustin Bernal

Jesusita, Pedro and family members

Rancho Santa Teresa Timeline: *The following sentences are in the wrong order. Number them so they are in the* correct *order with #1 happening first and #5 happening last.*

_____ Jesusita and Pedro Bernal started the Santa Teresa Water Company.

_____ Ygnacio Bernal planted orchards when the ranching business slowed down.

_____ The Ohlone were the first to live at Santa Teresa.

_____ Jose Joaquin Bernal moved to the area about 1826 and ran 5,000 head of cattle.

_____ Agustin Bernal petitioned a US court to certify the Santa Teresa land grant.

Drying Fruit

Applicable Content Standards

History-Social Science – Grade 3

3.5.1 Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.

Science – Grade 3

Physical Sciences 3.1.f Students know evaporation and melting are changes that occur when the objects are heated.

Materials

- Photocopies of *Drying Fruit*
- If you are doing this in-class, refer to the activity sheet for a list of needed supplies.

Directions

1. This activity may be completed in your school if you have appropriate kitchen facilities available. If an in-class activity is not possible, you may wish to send photocopies of this activity home with students; parents/adults could then supervise and conduct the activity if they wish.

Activity

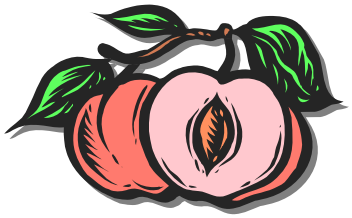
Drying Fruit

Benefits of Drying Fruit

Ygnacio Bernal certainly wasn't the first rancher to dry fruit. Drying fruit is an ancient food-preservation method with its origins dating back to the Egyptians, Greeks and Romans. Drying works to preserve fruit by removing water or moisture that is vital for the survival of bacteria and molds.

Dried fruits have many benefits. Once dried, fruit can be stored for use at a later date. It is compact and lightweight so it travels well and it tastes good.

Sun Method



This is an activity that explains how to dry fruits and vegetables. It is simple, inexpensive and fun. Summertime is the best time of year to try this with ideal conditions being hot, dry, sunny days. ***Low humidity is a key factor with this activity.***

Preparation Time: 30 minutes

Supplies: cookie sheets or cafeteria trays; small bowl; cheesecloth; fruit (no citrus); knife; lemon juice; and dry, sunny days

It is best to use ripe fruit. Wash the fruit thoroughly and remove any leaves, stems, pits and seeds. Peeling the fruit is optional. If you are working with apples, pears or other large fruit, thin slices approximately 1/4 inch work nicely. If you are using smaller fruits such as apricots or strawberries halving or quartering them should do the trick. Citrus fruits are not recommended.

Cover the drying trays with cheesecloth. Place sliced fruit in a small bowl and sprinkle lemon juice on the slices. This keeps the fruit from turning brown. Lay the prepared fruit on trays so slices do not touch. Cover fruit with a second layer of cheesecloth. Place the trays outside in the sun for several days, turning fruit once each day. Bring the trays in at night and if it rains. Depending on the type of fruit used and daytime temperatures, this activity should take two to six days to complete.

Oven Method

Preparation Time: 30 minutes

Supplies: cookie sheets, tin foil, fruit (no citrus), knife, lemon juice, oven

Fruit is prepared for the oven method the same as it is for sun drying. The only difference is to place tin foil over your cookie sheets instead of cheesecloth. Do not cover the fruit with anything else. Place in oven at 140 degrees for five hours, turning fruit once after two to three hours.

Scrub-a-Dub

Applicable Content Standards

History-Social Science – Grade 3

3.5.1 Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.

History-Social Science – Grade 4

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

Science – Grade 3

Physical Sciences 3.1.g Students know that when two or more substances are combined, a new substance may be formed with properties that are different from those of the original materials.

English-Language Arts – Grade 3

Reading Comprehension 3.2.3 Demonstrate comprehension by identifying answers in the text.

English-Language Arts – Grade 4

Reading Comprehension 4.2.2 Use appropriate strategies when reading for different purposes (e.g., full comprehension, location of information, personal enjoyment).

Materials

- Photocopies of *Scrub-a-Dub* and *Scrub-a-Dub Crossword Puzzle*

Directions

1. Have students complete the reading and then the crossword puzzle.

Crossword Puzzle Answer Key

Across	**Down**
5. washboard	1. ashes
6. rendering	2. bluing
7. lye	3. grater
9. dasher	4. straw
10. stove	5. wringer
	8. tallow

Name _____

Scrub-a-Dub

When Jose Joaquin Bernal was building his Rancho Santa Teresa in the 1820s and 1830s, soap was made by hand at home. The job was messy and smelled awful. Adults boiled up soap only once or twice a year and they always made it outside. Children were kept at a safe distance because the lye used in the soap could seriously burn the skin.

Soap has two main ingredients – lye and tallow – both of which were easily obtained around the rancho.

Lye comes from ashes. Ranch hands packed layers of straw and ashes (often collected from the kitchen stove and other fireplaces) into a wooden barrel. The barrel, which had a hole at the bottom, was put on a raised platform. Workers then poured hot water into the barrel which slowly trickled through the ashes. A day later, a thick alkaline liquid called lye began to drip from the barrel hole into the bucket.

Whenever the ranch workers butchered cattle, the animal fat was melted to make tallow – a process called rendering. The tallow from the kitchen and ranch operations was collected and kept for creating candles and soap.

To make soap, lye and tallow were boiled together in a big pot over an open fire. A ranch worker, probably the ranch wife, had to keep stirring constantly or the mixture would not blend properly. Poured into large pans to harden, the mixture often had pieces of lavender or ginger added to it for a pleasing scent. (You can see and smell lavender plants growing just outside the entrance to the Bernal-Gulnac-Joice house.) Later the finished cakes of soap were cut into hand-sized bars.

On laundry day, usually Monday, a grater was used to make flakes from the bars so the soap could dissolve faster in the wash water. Sometimes, a liquid called bluing was added to keep fabrics whiter and brighter. Once the clothes were washed on scrub boards and rinsed, they were put through a wringer to squeeze some of the water out. The ranch wife (again!) generally did the ironing on Tuesday when non-electric irons were heated on the kitchen stove before pressing the freshly laundered clothes.

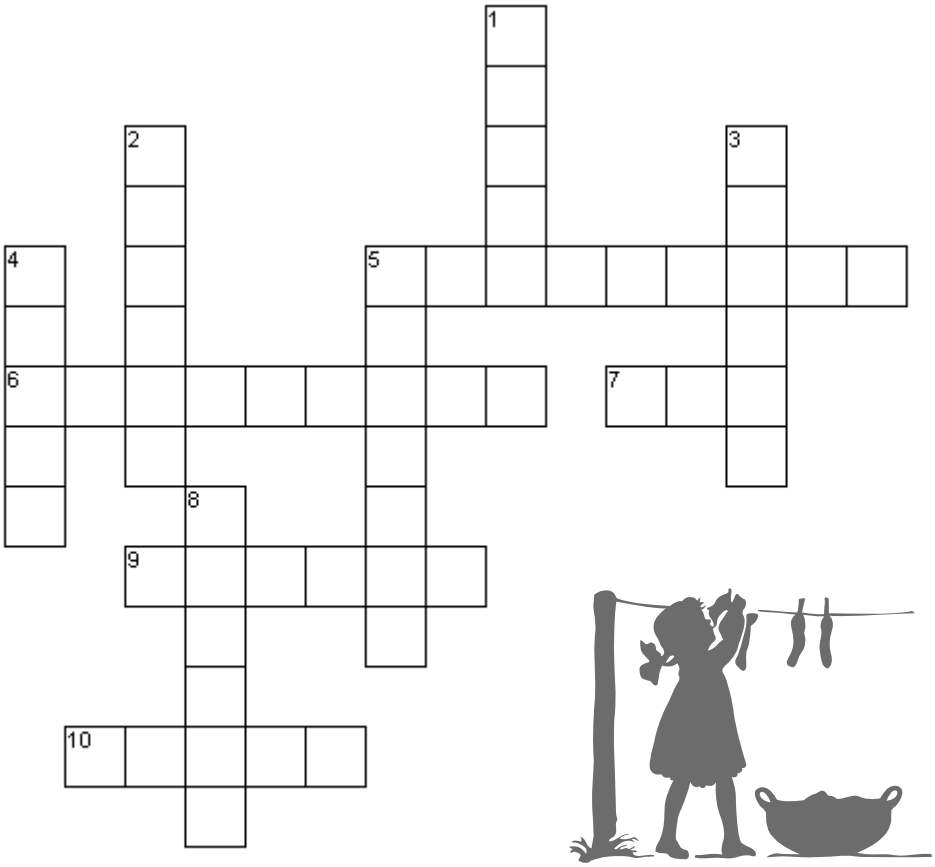
Modern clothes washers replaced the wash tubs, scrub boards, and dashers (hand-held agitators) of yesteryear.

Scrub-a-Dub Activity

On the next page is a crossword puzzle that you can use to test what you now know about soap-making and turn-of-the-century laundry.

Name _____

Scrub-a-Dub Crossword Puzzle



Across

5. ribbed board used for scrubbing clothes
6. process of melting fat
7. made when water drips through ashes
9. wooden stick used to move clothes around when washing
10. used to heat the irons for ironing

Down

1. soap ingredient sometimes collected from fireplaces
2. makes clothes brighter and whiter
3. used to make flakes of soap
4. layered with ashes in the soap making barrel
5. it squeezed water out of clothes
8. soap ingredient that comes from melting fat

Blue!

Applicable Content Standards

English-Language Arts – Grade 3

Word Analysis, Fluency, and Systematic Vocabulary Development 3.1.0 Students understand the basic features of reading. They select letter patterns and know how to translate them into spoken language by using phonics, syllabication, and word parts. They apply this knowledge to achieve fluent oral and silent reading.

English-Language Arts – Grade 4

Word Analysis, Fluency, and Systematic Vocabulary Development 4.1.0 Students understand the basic features of reading. They select letter patterns and know how to translate them into spoken language by using phonics, syllabication, and word parts. The apply this knowledge to achieve fluent oral and silent reading.

Materials

- Photocopies of *Blue!*

Directions

1. Have students complete *Blue!*, the fallen letters puzzle.
2. Make sure that students understand that the letters always stay in the same column and that each letter may be used only once in the column.
3. You may wish to review the reading, *Jesusita's Chickens*, which mentions that the Araucana chicken in the coop at the Bernal-Gulnac-Joice Ranch House lays eggs that are blue to blue-green in color.

Answer Key

What color are the eggs from some of the chickens at Santa Teresa County Park?

Name _____

Blue!

Directions: Solve this "fallen letters" puzzle by choosing and placing the correct letters into the boxes. (Notice that the E and the W from column 1 below will be placed in the boxes of column 1 above. Do the same for columns 2-18. Remember that letters always stay in the same column.) Other hints:

1. Some of the letters have been added for you – they are shown as crossed off.
2. The title, *Blue!*, answers the question you are trying to solve.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	H				C												
			S					M		S			E		O		
		H				H						S					
					N		A		T		R						
			C			N					A			?			

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E W	G ~~H~~ T	A ~~H~~ G	~~S~~ E S T ~~C~~	A O	U ~~C~~ C ~~N~~ F	~~H~~ T O R ~~N~~	T ~~A~~ I L O	O C ~~M~~ Y	K R ~~T~~	~~S~~ E P E	~~R~~ O N ~~A~~ A	E R M ~~R~~ ~~S~~	S ~~E~~ K E	A A	~~O~~ T T	F H	E

Sometimes a young visitor to the Bernal-Gulnac-Joice Ranch House takes home a fresh egg.

Three-Cent Bread

Applicable Content Standards

History-Social Science – Grade 3

3.5.3 Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs.

Mathematics – Grade 3

3.3.3 Solve problems involving addition, subtraction, multiplication, and division of money amounts in decimal notation and multiply and divide money amounts in decimal notation by using whole-number multipliers and divisors.

Mathematics – Grade 4

4.2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.

Materials

- Photocopies of *Three-Cent Bread*

Directions

1. Students can research comparable costs and facts through online searches, newspapers, and interviews with family and friends, almanacs, grocery and retail stores, etc.

Name _____

Three-Cent Bread[1]

Cost Comparison: How much would these items cost today?

Item	1900	Today	Difference
pound of sugar	$0.04		
dozen eggs	$0.14		
pound of butter	$0.24		
Brownie camera	$1.00		
gallon of milk	$0.30		
loaf of bread	$0.03		
gallon of gasoline	$0.05		
postage stamp	$0.02		

Fact Comparison: Research to find a comparable fact today.

Fact	1900	Today
U.S. population	75,994,575	
average income	$637.00/year	
life expectancy	51 yrs. women, 48 yrs. men	
hours worked per week	52	
best selling book	*To Have and to Hold* by Mary Johnston	

[1] Information on this worksheet taken from Time Magazine's Time Warp. 22 September 2002 <http://www.time.com/time/time100/timewarp/timewarp.html#>.

Teacher Guide

Technologies Circa 1900

Applicable Content Standards

History-Social Science – Grade 4

4.4.6 Describe the development and locations of new industries since the turn of the century, such as the aerospace industry, electronics industry, large-scale commercial agriculture and irrigation projects, the oil and automobile industries, communications and defense industries, and important trade links with the Pacific Basin.

Materials

- Photocopies of *Technologies Circa 1900*

Directions

1. Possible discussion areas and questions:
   - Choose an invention. How do you think _____ changed the lives of people living about a hundred years ago? Changed for better or worse? Changed the lives of men, women, children, farmers, and businessmen? Changed the lives of Californians, people across the United States or the world?
2. Activity: Students can create and post timelines of technologies introduced in the years surrounding 1899-1900 and1999-2000. Timelines can then be contrasted and compared.
3. Additional Activity:[1] Brainstorm a list of additional inventions for the years between 1900 and 2004 that make life easier and fun. (See <http://inventors.about.com/library/weekly/aa063002a.htm>, 21st Century Modern Inventions 2000 – for a list of inventions for 2000-2004. Links at that website will take you to inventions for the years 1900-1999.) Place students in groups of 2 and either assign or have them choose an invention. Their job is to research and find out the *Who?*, *What?*, *When?*, *Where?*, *Why?* and *How?* surrounding that item. Once they can answer each of the 6 questions for their invention, they should write a 1-2 paragraph summary that includes details on the *5 Ws* and *How*. Students will then read their paragraphs to the class and post their summaries on the wall to create a timeline for the inventions they researched.

[1] PBS TeacherSource. 18 May 2004 <http://www.pbs.org/teachersource/thismonth/index1.shtm>.

Name _____

Technologies Circa 1900[1]

1884.....James Ritty demonstrates the first mechanical cash register.

1886.....Josephine Cochran invents the dishwasher.

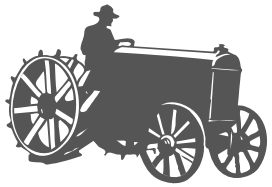
1888.....Marvin Stone patents the spiral winding process to manufacture the first paper drinking straw.

1891.....Jesse W. Reno invents the escalator.

1893.....W.L. Judson comes up with the zipper.

1898.....Edwin Prescott patents the roller coaster.

1899.....J.S. Thurman patents the motor-driven vacuum cleaner.



1900.....Benjamin Holt invents the first tractor.

1901.....King Camp Gillette creates the double-edged safety razor.

1902.....Willis Carrier invents the air conditioner.

James Mackenzie constructs the lie detector (polygraph) machine.

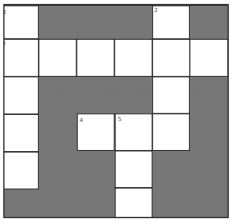
1903.....Edward Binney and Harold Smith invent crayons.

The Wright brothers fly the first-gas powered airplane.

1904.....Thomas Sullivan invents the teabag.

1906.....William Kellogg makes cornflakes.

1908.....Henry Ford begins production of the Model-T automobile.



1910.....Thomas Edison demonstrates the talking motion picture.

1913.....Arthur Wynne invents the crossword puzzle.

Harry Brearley discovers stainless steel. [2]

[1] Inventions and Inventors. 12 September 2002 <http://inventors.about.com/mbody.htm>.
[2] Chemistry. 5 December 2002 <http://sciencenet.org.uk/database/chmistry>.

Teacher Guide

Two Tall (but True) Tales from the Rancho; Healing Waters of Santa Teresa Spring; Hay and Haymaking; Eggs, Eggs, Eggs

Applicable Content Standards

History-Social Science – Grade 3

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

History-Social Science – Grade 4

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

English-Language Arts – Grade 3

Reading Comprehension 3.2.0 Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies as needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources)…In addition to their regular school reading, by grade four, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade three, students make substantial progress toward this goal.

English-Language Arts – Grade 4

Reading Comprehension 4.2.0 Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies as needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources…In addition to their regular school reading, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information).

Materials

- Photocopies of the readings

Directions

1. Photocopies of the readings
   - **Online Link:** See <http://falcon.jmu.edu/~ramseyil/tradmays.htm> (Charity Belle Mays, Folktale, Myth, Legend and Fable) for excellent definitions and brief discussion of the four literary genres. Terms are applicable to *Two Tall (but True) Tales of the Rancho* and *Healing Waters of Santa Teresa Spring*.

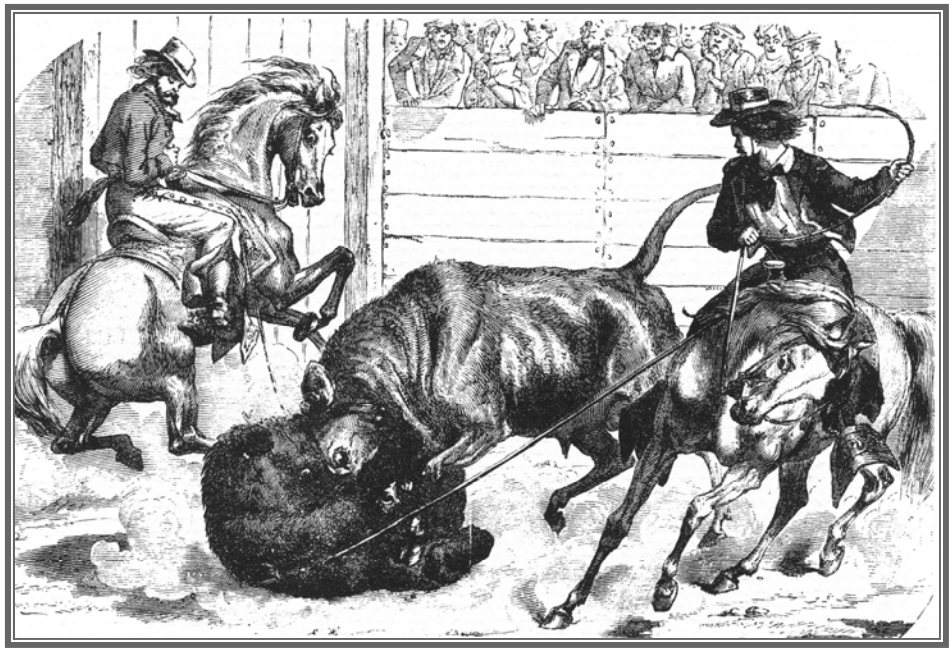
Reading

Two Tall (but True) Tales of the Rancho[1]

Now, the tree provides only tranquility and shade, a leafy Valley Oak growing in the Santa Teresa Historic Park Area. Yet enraged grizzles once clawed great chunks of bark from this protected oak. It is the last reminder of a gruesome and compelling contest that drew hundreds of bloodthirsty spectators to this place.

In the 1820s and 30s, Spaniard Jose Joaquin Bernal operated an expansive rancho on what is now a county regional park. Antonio Bernal, Jose Joaquin's son, hunted grizzly bears in the nearby hills. It took three or more men to capture a 1,400-pound bear. While on horseback, Antonio lassoed the bear's neck. Another horseman snared the animal's hind foot. The grizzly was stretched and choked into unconsciousness, then dragged to the rancho grounds.

A thick chain secured the beast to the oak tree. Five of the rancho's wildest bulls were chosen. Each bull, in turn, was tied foot-to-foot with the grizzly. Several bulls may have died trying to gore the bear. If the grizzly's strength waned first, a bull's horns could sever a vital artery.



More than 700 bear-bull fights were staged here before the United States government outlawed these events shortly after the 1849 gold rush.

Around this time, another local incident was soon to turn into compelling lore. Not far from the oak tree, an old cistern hides in a clump of blackberry bushes which thrive in wet areas of the park. A French saddle maker named Changara once used this vat to tan leather. Changara lived on the rancho, making fine leather saddles for the Bernal family and the cowhands. Not much is known of the man, except that he was a notorious miser. When Changara got 50 saddles ahead of what the rancho needed, he rode south to Santa Barbara to sell his extra saddles.

Changara returned with sacks of gold coin, which he buried on the rancho. Before each trip, he secretly reburied all his loot in a different location. He had $10,000 in gold coin buried underground, when robbers bashed in his head while he slept under the stars on his way back from Santa Barbara – Changara rarely spent money on hotels, even if he was carrying gold. To this day, Changara's treasure has never been found.

[1] "Two Tall (but True) Tales from Santa Teresa Historic Park Area." Parklands, A Newsletter by the Santa Clara County Parks and Recreation Department Spring 2002.

Reading

Healing Waters of Santa Teresa Spring[1]

No hike is complete without a stop at the spring.

The fresh, maybe magical, water continually flows from seams in a formation of hard gray sandstone. The spring feeds a tranquil downhill pond shaded by a willow and oak thicket. Resting here, watching water striders skim across the surface, you can easily believe the ancient legend repeated by County Park Interpreters at Rancho Santa Teresa Historic Park.

Native Americans, living by this spring in the 1820s, first told the tale to Jose Joaquin Bernal. A retired Spanish soldier, Jose Joaquin owned and ran a large rancho on the property. In the handed-down story, Ohlone Indians become deathly sick after coloring their bodies with locally gathered cinnabar, a red rock from which mercury can be extracted. Following a failed attempt to placate the Great Sprit, the chief shoots an arrow skyward. A woman, robed in black, mysteriously appears. She strikes a stone from which crystalline water gushes forth. She motions to drink and bathe in the spring's waters, which quickly cures the tribe. A practicing Catholic, Jose Joaquin Bernal, believed the feminine apparition was the Catholic saint, Santa Teresa de Avila. Henceforth, he named the spring and his rancho, Santa Teresa.

In the early 1900s, the spring produced 800 to 1,400 gallons of slightly mineralized water per hour (enough to fill a small public swimming pool about once a week). Scientists have speculated its source is high in the Sierra Nevada. During drought years the flow slows. It increases after repeated storms. Historically, water channeled from the spring provided for herds of cattle, wheat fields, a vineyard, orchards and the domestic needs of the rancho's families.

Another use arose when Pedro Bernal, the great grandson of Jose Joaquin Bernal and his mother, Jesusita, established the lucrative Santa Teresa Springs Water Company in 1910. The exaggerated claim on the bottled water's labels, in part, read "The eight grams of calcium carbonate, so important in bone building and in cleaning the blood of all impurities, is one of the chief ingredients and is also beneficial in checking the dreadful advance of tuberculosis." Pedro's pitch also recalled the spring's well-known mythical powers: "The Indians who were considered the best judges of all natural elements formerly used to gather from great distance to drink this water in abundance and were noted for living to a ripe old age."

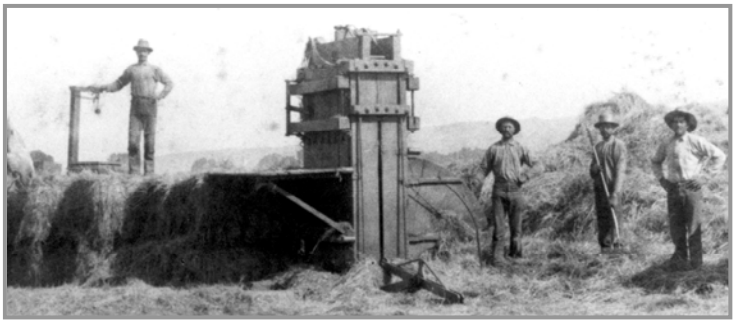
[1] "Healing Waters of Santa Teresa's Spring." Parklands, A Newsletter by the Santa Clara County Parks and Recreation Department Spring 2002.

Reading

Hay and Haymaking

At Rancho Santa Teresa, Ygnacio Bernal grew hay on the hillsides and in his valley. The tools used for haymaking were, and still are, relatively simple: a mower for cutting, rake and fork for gathering the hay, a vehicle for hauling, and finally, a place for safely storing the hay.[1]

Horse-drawn wagons transported the hay bales.



A simple machine helped bale the hay.

Ranchers and farmers make hay by cutting fresh grass or a grass-legume mixture. (Legumes are plants such as clover, alfalfa and soybeans.) The grass is cut after seeds have appeared on it, but before the plant has dried and turned brown.

In Ygnacio Bernal's time, ranchers used large, hand-held forks to turn the cut grass in the fields and expose it to drying by the sun and wind. Two or three days under the hot sun and the dried grass – now called hay – would be piled into tall, compressed stacks or be baled. At the Bernal ranch, as it was at many ranches in the late 1800s, men on horse-drawn wagons hauled much of the hay to the barns for storage so that it would not rot during a wet winter.

Men used pitchforks to handle the hay.

Hay was used to feed cattle, along with other animals such as sheep and goats, on the Bernal ranch. Today, ranchers still feed nutritious hay to help fatten their cattle. During the warm growing season, most livestock roam fenced-in fields, grazing on pasture grasses and legumes. During the winter, the cattle eat a lot of stored food crops such as hay and silage (a kind of fermented grass/legume mixture).

[1] Haymaking. 16 November 2002. <http://www.xrefer.com/entry/216804>.

Reading

Eggs, Eggs, Eggs

Today's coop houses healthy brooders.

Jesusita Bernal fed her husband and four children hundreds, if not thousands, of eggs out of the chicken coop. One of the children's many daily chores would be to help Jesusita care for the hens and collect the eggs.

Eggs are still an important part of most of our diets; however, now we buy them at the grocery store.

Did you know:[1]

- A hen requires 24 to 26 hours to produce an egg. Thirty minutes later, she starts all over again.
- As a hen ages, egg quality declines and, at about 18 to 20 months of age, molting (loss of feathers) occurs. When molting is over, egg production resumes.
- The eggshell may have as many as 17,000 tiny pores over its surface. Through them, the egg can absorb flavors and odors. Storing them in their cartons helps keep them fresh.
- Eggs age more in one day at room temperature than in one week in the refrigerator.
- White shelled eggs are produced by hens with white feathers and ear lobes. Brown shelled eggs are produced by hens with red feathers and red ear lobes.
- Egg yolks are one of the few foods that naturally contain Vitamin D.
- Occasionally, a hen will produce double-yolked eggs.
- Currently, the top ten egg producing states are: 1) Iowa, 2) Ohio, 3) California, 4) Pennsylvania, 5) Indiana, 6) Texas, 7) Nebraska, 8) Minnesota, 9) Georgia, 10) Florida.

[1] American Egg Board, Eggcyclopedia. 30 October 2002 <http://www.aeb.org/eggcyclopedia>.

Photography Credits

John Dorrance; California History Center Foundation, De Anza College; Friends of Santa Teresa Park; Scott Hinrichs; History San Jose; Ron Horii; Patrick Joice; San Jose Public Library, California Room; San Jose State University, Special Collections; Sourisseau Academy for State and Local History

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Teacher Evaluations

The Staff at Rancho Santa Teresa Historic Park Area would appreciate your feedback on this teaching and activity guide. Please complete and return this evaluation form to let us know if there is anything we can do to better meet your needs. Thank you for your time and effort.

Check which of the following materials you used to teach your students about Rancho Santa Teresa:

_____ KWL Chart
_____ Rancho Word Search
_____ What's in a Label?
_____ Old Time Games
_____ 1900 Parlor
_____ 1900 Bedroom
_____ 1900 Kitchen
_____ Jesusita's Chickens
_____ Phenakistoscope Activity
_____ Map Analysis Worksheet
_____ Diseño
_____ Bernal's Hacienda
_____ Bernal Family at Rancho Santa Teresa
_____ Photograph Analysis Worksheet
_____ Brief History of Rancho Santa Teresa
_____ Pedro Bernal's Marl Mine, Marl Matching
_____ Santa Teresa History Review
_____ Drying Fruit
_____ Scrub-a-Dub
_____ Blue!
_____ Three-Cent Bread
_____ Technologies Circa 1900
_____ Two Tall (but True) Tales from the Rancho
_____ Healing Waters of Santa Teresa Spring
_____ Hay and Haymaking
_____ Eggs, Eggs, Eggs

For which grade level(s) did you use these materials? _____

What did you find most useful about the guide?

Are there any topics or activities you would like to see added to the guide?

Any additional comments?

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