Education Curriculum
for the
San Juan Spanish Colonial Demonstration Farm

Cooperative Ecosystem Study Units National Network
San Antonio Missions National Historical Park
University of Texas at San Antonio

PR#/Agreement #:
20031243/ H1200-09-0005

Final Report
September 2014
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Mission and Purpose of the Center for Cultural Sustainability

The Center for Cultural Sustainability (CCS) explores the continuity of the cultural systems of human existence and the common identities of heritage that bind people to places.

The CCS provides academic research and services to benefit communities, completes large-scale research projects, provides research and educational opportunities for graduate students, and convenes leaders in the field for dialogue on global practices concerning sustainable development and construction.

The CCS is a research center of the University of Texas at San Antonio (UTSA) and is housed within the College of Architecture.
Education Curriculum for the San Juan Spanish Colonial Demonstration Farm

Project Abstract

The San Antonio Missions National Historical Park recently completed work on a Spanish Colonial Demonstration Farm. This project provides the education curriculum and lesson plans for grades 6-12 to educate students about Spanish Colonial life ways. The lesson plans engage students through decision-making and problem solving issues (what to plant when, assessment of effort for expected return), mathematics (area, volume of water, calculating yield), engineering (acequia maintenance, water allocation), biology (crop rotation, integrated pest management), economics (trade, supply and demand), and physics (tools, gravity). The program targets students in the 17 school districts in the San Antonio area. The largest 3 school districts alone have over 250,000 students. All activities have been pilot-tested and evaluated by area teachers and their students. Lesson plans are intended to be available for download on the SAAN park website, so there would be no cost to the teachers for their use.

These lesson plans are the first phase in the development of additional hands-on curriculum for local school districts. Additional experiences as the demonstration farm develops will include hands-on Spanish Colonial gardening, harvesting, and marketing.

Per the agreement, three lesson plans have been developed, structured for accessibility and functional use on the NPS website and the NPS Education Facebook page.

San Antonio Missions National Historical Park

The United States National Park Service manages all the property within the boundaries of the San Antonio Missions National Historical Park, which was established under Public Law 95-629 (1978) and Public Law 101-628 (1990). The four mission churches within the National Historical Park are owned and operated by the Archdiocese of San Antonio.


Final Curriculum Products

Three curriculum products were developed and designed per the Cooperative Ecosystem Studies Unit agreement with collaboration and direction from the San Antonio Missions National Historical Park personnel.

The curricula represent a set of holistic experiences that meet the demands of contemporary learners and that conform to the needs expressed by the Missions National Park Service personnel. The curricula access multiple ways of learning in interdisciplinary and authentic contexts, inviting learners to experience Mission San Juan, the demonstration farm, acequia, and the surrounding environment.

The following is a brief overview of the three curriculum products:

1. *Economic and Agricultural Life In Mission San Juan*
   Format: Curriculum Set (multiple lessons)
   This curriculum includes three lesson sets, each with a pre-, on-site, and post-visit set of activities. The lessons were designed for grades 4 through 7 and address these topics: barter and trade at Mission San Juan; crop yields per population, planting & designing farm space; and acequia ecology and Mission lifestyles. The curriculum incorporates knowledge and skills (TEKS) from mathematics, social studies, economics, science, and English language arts.

2. *Mission San Juan: Sustainability Then and Now*
   Format: Curriculum Set (multiple lessons)
   This curriculum includes a pre-, on-site, and post-visit set of activities. The overarching theme is “sustainability” with “ecological and cultural sustainability” serving as the foci. The curriculum incorporates knowledge and skills (TEKS) from science and social studies.

3. *Life In Mission San Juan: A Historical Literacy Approach*
   Format: Curriculum Set (multiple lessons)
   This curriculum includes a pre-, on-site, and post-visit set of activities. Reading and writing experiences are united with social standards and skills through these interdisciplinary lessons. Students will use authentic literature, historical
investigation and a field trip to the mission to lead them in their comprehension of mission life in a historical context. These lessons address: Spanish Colonialism in Texas, the contributions and culture of the Indigenous tribes surrounding Mission San Juan, the vulnerability of Mission San Juan. Students will demonstrate their understanding of the importance of the historical preservation of Mission San Juan through expository and persuasive writing experiences.

Additional Curriculum: Self-Guided Tour

Explore, Examine, Experience Mission San Juan Capistrano
Format: Website http://282758843809942222.weebly.com/
Available as a website, this curriculum takes the form of a self-guided tour and was intended to be used as a complement to an actual (physical) visit to Mission San Juan Capistrano. The website incorporates several educational resources that are available at the Missions National Park, such as video and audio recordings about life at the Mission in the Spanish Colonial period. The tour concepts are community, natural resources (acequia/water, labores/food, ranching/livestock), culture, religion, and vulnerability. The learner is asked to “explore” each concept with drawings and photographs of the Mission and to more carefully “examine” the concept using the available informational resources.

The Lesson Plans

The curriculum is highly adaptable could also be used by parents and teachers for pre- or post-visit learning. With some additional development, the website could emerge as a full “virtual tour” of Mission San Juan which would potentially open the park to millions of individuals who are unable to visit the Mission in person.

The full text of each lesson plan follows, each in its own section.
## Economic and Agricultural Life In Mission San Juan:
An Interdisciplinary Lesson Unit

<table>
<thead>
<tr>
<th>Grades: 4-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Areas Addressed: <strong>Science, Language Arts and Social Studies</strong></td>
</tr>
<tr>
<td>Setting: Classroom and Mission San Juan</td>
</tr>
</tbody>
</table>

### Curriculum Overview

This lesson unit addresses life of the mission residents at Mission San Juan Capistrano. The curriculum provides classroom activities prior to the visit to the Mission, interactive field experiences at the Mission, and reflective post-visit activities.

The lessons are organized around three main ideas:
1. Economic barter and trade and water conservation (Station 1),
2. Agriculture: crops and yields (Station 2), and
3. *Acequias* and economy (Station 3).

The aim of this curriculum unit is to engage students in ecologically just practices and to encourage students to share their knowledge with others. The activities integrate drawing, writing poetry, creative writing, critical thinking, debate, oratory and presentation skills, and teamwork.

### Lesson Set 1

Students learn about the barter and trade system – and the value of various items at the Mission.

### Lesson Set 2

Students use information about plant yields and average consumption of different crops at the Missions. Students use proportions to solve real world mathematical problems about planting. Students will also apply area formulas to field design.

### Lesson Set 3

Students compare lifestyles of hunter/gathers and farmers. Students study the *acequias* developed by the Spanish missionaries and built by the Mission Indians. The students will identify the parts of the *acequias* (ditch and sluice gate) investigate the operating principles of a gravity-driven irrigation system. The importance of the *acequia* system in relation to local climate and limited water resources and the riparian zone and its role in preservation and water conservation.

### Materials

#### Lesson Set 1
- Access to the internet to view video
- Paper and crayon for each student
- Blank paper for Poetry
- Treasure Box filled with different items of value: 1/2 ounce silver coin, 1/10 ounce gold coin, leather chaps, soap, fruit and vegetables, land deed, pottery, cotton cloth, candles, pair of shoes, hats, copper, apothecary, wig, water, water jug

#### Lesson Set 2
- Access to internet
- Basic Information about San Juan Mission
- Handout (attached)
- Calculator
- Pencil
- Rulers and yard sticks (for site visit only)

#### Lesson Set 3
- Did You Know cards
- *Hunter Gatherer vs. Agricultural Lifestyle* cards
- Modeling clay
- 1/16” thick birch plywood
- Yardstick (for site visit only)
Vocabulary and Background Information

**Ecoregion** – pattern of ecosystems with combinations of soil and landform that characterize region.

**Watershed** – an area of land where all of the ground and surface water from the area drains into the same place.

**Mission** – a settlement founded to spread Christianity to the people of the area.

**Sustainability** – ability to maintain ecological processes over long periods of time; ability of an ecosystem to maintain its structure and function over time.

-Missions were Spain’s main way of colonizing and were expected to support themselves.
-Missions were used to convert the Native Texans to the Catholic faith and make loyal subjects to Spain.

Objectives

**Lesson Set 1**
Students examine the positive and negative aspects of barter and trade.

**Lesson Set 2**
Students will learn about plant yields and average consumption of different foods that were planted at the Mission and will use proportions to solve real world mathematical problems about planting. Students will apply area formulas to the design of fields and will use dimensional analysis to estimate crop yields for numbers of people (Mission residents).

Central questions for this lesson set are:
- How much of each plant needs to be produced to meet the survival needs of Mission residents? In order for the students in the classroom and their families to survive?
- How large do each of the areas where plants will be planted need to be in order for there to be enough crop grown?
- How much seed is needed to grow the different crops?
- Given a specific size of land, what percentage of land should be dedicated to particular crops?

**Lesson Set 3**
Students will compare and contrast the lifestyles of the Missions residents. Central questions for this lesson set are:
- Why is irrigation of farmlands so important in South Texas?
- What drives the water in the *acequias*?
- Who built the *acequia* system?
- What is the role of the riparian zone in the *acequia* system? Is it important? Why?
- What can YOU do to preserve water and protect the limited water sources?
Lesson Sets

Lesson Set 1: Economics at Mission San Juan

Part 1: Pre-Visit (classroom)
The students will discuss the economics of barter and trade. This video provides a short (3 minute) examination of the history of the barter and trade system.
http://www.youtube.com/watch?v=ZXluFpu72Nk

Part 2: Visit (on-site)
Using the treasure chest box the students select an item of value that they see highly and critically useful to trade. The items in the box can include: 1/2 ounce silver coin, 1/10 ounce gold coin, leather chaps, soap, fruit and vegetables, land deed, pottery, cotton cloth, candles, pair of shoes, hats, copper, apothecary, wig, water, water jug

Part 3: Post Visit (classroom)
Students can use their creative powers to draw a design of a symbol on a coin that represents something that they remember from the field trip.

The student will write a creative poem regarding the reason they selected the item and the usefulness of the resource. Students will also write (as part of their poem) about their selected “valuable” item at the Mission – and discuss a barter and trade system using these items.

Lesson Set 2: Farming & Proportional Thinking

Part 1: Pre-Visit (classroom)
Discussion:
Begin lesson by asking students what types of fruits and vegetables they eat on a regular basis. Ask them where the food comes from. Note that food originally comes from farms. Engage in discussion about how big the farms need to be in order to make enough food for people who buy it in grocery stores. Then guide students to think about what people would have eaten while living in Missions San Juan.

- Show the basic information sheet about the San Juan Mission and discuss the different main foods that were planted at this mission. Divide the students into groups that will each have one food that they use for the remainder of the project.
- Then pass out sheet called How Much Food Do You Take Up, Part 1. Students will search online to find some of the answers (or the teacher could provide the statistics to students).

Part 2: Visit (on-site)
- Students will visit the San Juan Mission. While there, one of the stations will be next to a field. Students will use a surveyor’s wheel to measure how they would plant 10 of their plants based on their calculations done previously in class. They will actually dig places where the seeds would go and how deep they would be. Once finished the teacher needs to document their work by recording it and taking pictures.
Part 3: Post Visit (classroom)
- Students analyze the documentation of their farm plots to determine how accurate their digging was based on their pre-trip information search.
- Students work on Questions 1-3 on the sheet called, How Much Food Do You Take Up, Part 2. They will need to be able to reference the first worksheet, How Much Food Do You Take Up, Part 1, in order to answer the new questions.
- Teacher posts the Table from Question 4. As students finish Question 1-3, one person from each group will fill out their crop’s information. Each group will need information from all other groups in order to answer question 4. Depending how far along in the curriculum the class is the teacher may need to help guide students how to get the answer to number 5.
- Once each group has finished their portion, the teacher will lead a discussion among the classroom having students begin discussing the big question:

“What percentage of 1 acre would their crops take up if all of the crops were to be planted together?”

Once each group has given their calculations, students can check each other’s work by totaling up the percentages. Students should understand that all of the different parts should add up to the whole 100% of the field. If the total is not 100%, then students will need to work together to determine why.

Evaluation
- The teacher may have students write a reflection about what they learned the past week. For example, what did they learn about ratios, percentages, problem solving, food consumption, etc. Students may use any means to write their reflection, via words, pictures, poetry, etc.

Lesson Set 3: Mission Lifestyles and Acequia

Part 1: Pre-Visit (classroom)
- Day 1: “Did You Know?” Gallery Walk
- Day 2: Hunter Gatherer vs. Agricultural Lifestyle Discussion

Part 2: Visit (on-site)
Discussion Question:
- Why is irrigation of farmlands important in light of weather patterns of South Texas (intermittent rain, frequent drought, limited water availability)?

Students will see parts of the acequias and learn about their function in the irrigation system.
- Trace the path of the acequias from the San Antonio River to the Missions and back.
- INTERACTIVE: have students measure the area of a plot and calculate the amount of time needed to water that area (assuming 1 inch deep coverage of the plot and 1 ft³/min water flow rate). This interactive portion need to be carried out in groups, with the aid of a table to look up the time needed to water the area as a function of the plot area (measured), required coverage and flow rate. Determine how many plots of the same size (how many ft² total) can be watered in a day (assuming 16 hour workdays). This number is the suertes, which is the measure of cropland used by the Spanish colonial settlers.
Students will see the vegetation of the riparian zone.

- Discuss the ways through which the parts of the ecosystem of the farm interact, potential harmful effects and how to avoid and/or mitigate those, such as using crop rotation instead of fertilizers, and ensuring that the riparian vegetation remains intact to prevent erosion.

Overall Questions for Discussion:

- Why is irrigation of farmlands so important in South Texas?
- What drives the water in the acequias?
- Who built the acequia system?
- What is the role of the riparian zone in the acequia system? Is it important? Why?
- What can YOU do to preserve water and protect the limited water sources?

Part 3: Post-Visit (classroom)

In this activity students build a model of the acequia using modeling clay to form the waterbed and the water banks, and thin (~1/16” thickness) birch plywood to construct the sluice gates.

- Students are to design a water source (such as river) and fields to be irrigated. The design will be an artistic rendition of the acequia system the students saw during their visit to Mission San Juan. This activity will provide students an opportunity to reflect on the visit through a hands-on activity.
- Once students have finished their model of the acequia they will continue to reflect on their visit to Mission San Juan using art or written reflection. It is recommended that teachers ask students in the 4th grade to use art as a form of reflection. In the 7th grade, written reflection is preferred.
- Alternatively, students interested in computer technology, may be offered the option to create a digital artifact that reflects on their experiences. Since this option potentially requires digital recording at the mission, it is recommended that students are provided these options and are encouraged to make their selection prior to their visit to Mission San Juan.

State Standards: TEKS

Lesson Set 1 TEKA
§118.8 – Economics 12 A, B, C; 13 A, B, C, D

Lesson Set 2 TEKS
§111.16. Mathematics, Grade 4. 4D; E; 5A, B; 11A; 14A, B, C
§111.23. Mathematics, Grade 7 – 1B; 2B, D; 3A, B; 4A, B, C; 9A; 13A

Lesson Set 3
§112.15. Science, Grade 4 – 7A, B
§113.15. Social Studies, Grade 4 – 9A, B, C
§111.6. Mathematics, Grade 4 – 1A; 8
§113.19. Social Studies, Grade 7 - 8C; 9A; 19C; 20C
§111.27. Mathematics, Grade 7 – 1A; 3B
(A)
How Much Food Do You Take Up?
Part 1

Questions to Answer:

1. What is your group’s crop of choice?

2. What is the average amount of this food that people eat in one year?

3. How much will 1 acre of land with your crop planted in it produce in one season? (the average yield)

4. How do you plant your crop?

5. How many people would 1 acre of your crop feed?

6. What is the size of 1 acre in feet?

7. Based on your findings, how much seed would be needed in order to plant 1 acre with your crop?

8. Based on your findings, how many acres would need to be planted of your crop in order to support the number of people who would have lived at the San Juan Mission? Use the number of people on average that lived at the mission.
How Much Food Do You Take Up?  
Part 2

Questions to Answer:

1. How many acres of your crop would need to be planted in order to feed the entire class?

2. How many acres of your crop would need to be planted in order to feed the entire school?

3. How many acres of your crop would need to be planted in order to feed the entire city of San Antonio?

4. Fill in the following table based on what all the different groups found for their answers.

5. If there were only 1 acre to grow all of the crops for this project, what percentage of the field would your crop take up?
<table>
<thead>
<tr>
<th>Type of Crop</th>
<th>Number of Acres to Feed the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
Teacher can use the following data in lieu of student internet search
This data were collected in November, 2013.

<table>
<thead>
<tr>
<th>Crop</th>
<th>How to Plant</th>
<th>Amount 1 person eats</th>
<th>Average yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>Plant seeds 1 inch deep, 9 to 12 inches apart. Leave about 3 feet between rows.</td>
<td>About 24.4 bushels/year</td>
<td>113 bushels/acre</td>
</tr>
<tr>
<td>Squash</td>
<td>Plant seeds one inch deep and 2 to 3 feet apart.</td>
<td>4.4 lbs per year</td>
<td>22,000 lbs per acre</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>When the slips are 6 to 12 inches tall and all danger of frost has passed, carefully remove them from the potato and plant them deep enough to cover their roots and about (\frac{1}{2}) inch of the stem. Set them 12 to 18 inches apart.</td>
<td>About 6 lbs per year</td>
<td>11,000 lbs per acre</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>Dig a furrow 6 in deep. Place 12 in stems horizontally in furrow and cover with soil. Rows are about 6 feet apart, there can be 3 or more crops harvested from one stem</td>
<td>in 2011, The average person consumes about 24 kilograms of sugar each year</td>
<td>77,000 lbs per acre</td>
</tr>
<tr>
<td>Watermelons</td>
<td>Plant seeds 3---5 ft apart</td>
<td>In 2010 average consumption was 15.5 lbs per person</td>
<td>40,000 lbs per acre</td>
</tr>
<tr>
<td>Peppers</td>
<td>Start pepper seeds three to a pot, and thin out the weakest seedling. Let the remaining two pepper plants spend their entire lives together as one plant. transplant seedlings outdoors, 18 to 24 inches apart (but keep paired plants close to touching.)</td>
<td>Between 2000 and 2009, per capita consumption of all chilies (fresh and processed) in the U.S. increased from 5.2 pounds to 6.6 pounds.</td>
<td>9,000 lbs per acre</td>
</tr>
<tr>
<td>Crop</td>
<td>How to Plant</td>
<td>Amount 1 person eats</td>
<td>Average yield</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Pumpkins** | **Vine Varieties**: Plant seeds 1 inch deep (4 or 5 seeds per hill). Plant hills about 5 feet apart. Rows should be about 12 feet apart. When the young plants are well-established, thin each hill to the best two or three plants.  
**Bush Varieties**: Plant seeds 1 inch deep, with 1 or 2 seeds per foot of row. Rows should be 6 feet apart. Thin to a single plant every 3 feet.  
**Miniature Varieties**: Plant seeds one inch deep, with 2 or 3 seeds every 2 feet in the row. Rows should be 6 to 8 feet apart. When the seedlings have their first true leaves, thin to the best plant every 2 | About 5 lbs per person. | Good yields of small varieties range from 5 to 7 tons or 2000 to 4000 fruit per acre. Large pumpkins may yield 10 to 20 tons or 1,000 to 2,000 fruit per acre. |
| **Grapes**   | Space vines 6 to 10 feet apart (16 feet for muscadines).  
For each vine, dig a planting hole 12 inches deep and 12 inches wide.  
Fill with 4 inches of topsoil. Trim off broken roots and set the vine into the hole slightly deeper than it grew in the nursery. Cover the roots with 6 inches of soil and tamp down. Fill with the remaining soil, but don't tamp this down. | In 1970 consumption was 2.5 lbs per person. Today it is about 8 lbs per person | 5,500 lbs per acre |
HUNTER GATHERER vs. AGRICULTURAL LIFESTYLE

Learning goal: to help students explore the advantages and disadvantages of the hunter—gatherer and agricultural lifestyles.

Grade levels: 4th – 7th

Activity:
Group students into two groups and ask them to imagine that they are hunter—gatherers or farmers. Have them discuss the advantages and disadvantages of the two lifestyles. To help initiate the discussion points and cover important vocabulary terms, provide a set of cards with expressions related to each lifestyle to the groups. Have the students pick the expressions they want to utilize and ask them to describe the meaning of the words during the discussion. During the discussion, encourage a friendly debate between the two sides.

<table>
<thead>
<tr>
<th>Hunter Gatherer</th>
<th>Agricultural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large knowledge of food sources, danger, opportunities shared with the group</td>
<td>Dependency on a few plants</td>
</tr>
<tr>
<td>Diverse diet</td>
<td>Greater vulnerability to weather</td>
</tr>
<tr>
<td>No stored surplus of food</td>
<td>Dependency on harvest times</td>
</tr>
<tr>
<td>Small group</td>
<td>Need for intense physical labor</td>
</tr>
<tr>
<td>Continuously moving</td>
<td>Solid dwellings</td>
</tr>
<tr>
<td>No specialization, technology limited</td>
<td>Expanding tool kit</td>
</tr>
<tr>
<td>Communal life</td>
<td>Specialization, technology advances</td>
</tr>
<tr>
<td>Egalitarianism</td>
<td>Wealth accumulation possible</td>
</tr>
<tr>
<td>Simple rules</td>
<td>Population growth</td>
</tr>
<tr>
<td>Low birth rate</td>
<td>Infectious disease</td>
</tr>
</tbody>
</table>
## Data Table for Acequia Activity During Visit

<table>
<thead>
<tr>
<th>Area of Plot (ft²)</th>
<th>Volume of Water (ft³)</th>
<th>Time to Fill (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>833.33</td>
<td>13.89</td>
</tr>
<tr>
<td>15,000</td>
<td>1,250.00</td>
<td>20.83</td>
</tr>
<tr>
<td>20,000</td>
<td>1,666.67</td>
<td>27.78</td>
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<tr>
<td>25,000</td>
<td>2,083.33</td>
<td>34.72</td>
</tr>
<tr>
<td>30,000</td>
<td>2,500.00</td>
<td>41.67</td>
</tr>
<tr>
<td>35,000</td>
<td>2,916.67</td>
<td>48.61</td>
</tr>
<tr>
<td>40,000</td>
<td>3,333.33</td>
<td>55.56</td>
</tr>
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<td>45,000</td>
<td>3,750.00</td>
<td>62.50</td>
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<td>50,000</td>
<td>4,166.67</td>
<td>69.44</td>
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<td>4,583.33</td>
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</tr>
<tr>
<td>100,000</td>
<td>8,333.33</td>
<td>138.89</td>
</tr>
</tbody>
</table>
**DID YOU KNOW?**

**Learning goal:** to engage students in the topic of the Spanish Missions in San Antonio and South Texas through interesting facts that they read about throughout the classroom.

**Grade levels:** 4th – 7th

**Stages of activity:**

**STAGE 1:**
The cards provided below contain interesting facts about South Texas, the Spanish Missions and Mission San Juan Capistrano. Place the cards throughout the classroom in stations and have the students do a gallery walk around the classroom to read these facts. Encourage discussions amongst students at and in-between stations.

**STAGE 2:**
In a follow-up activity, split the students into small groups and have them discuss which facts they thought were the most interesting/unexpected to them and why. Poll the groups after the activity to decide which facts were the most interesting to the class.
Mission San Juan Capistrano was established in 1731.
Mission San Juan was originally founded in East Texas, but was later moved to the San Antonio area due to frequent Apache attacks in the original location.

The Mission not only served as a regional supplier of agricultural products, but also as supplier of other products including iron, wood, cloth, and leather goods produced by the Indians.

Animals were not kept at the Mission, but about 20 miles away at Rancho Pataguilla in the current Wilson County (Lodi, TX). The road connecting the Mission and the ranch was called El Camino del Cibolo (The Road to Cibolo).
Prior to the conquest of the Americas, there were no horses on the Continent for thousands of years. The Spanish conquistadors brought them to the Americas in the 1500s.

Rancho Pataguilla was very large, in 1762, it reported 3,500 sheep and nearly as many cattle.

Cowboys are originated from the Spanish colonial times. Vaqueros (the “original cowboys” were Indians on horseback herding cattle at the Mission ranch.)
<table>
<thead>
<tr>
<th>Mustangs are not wild, but “feral” horses that were originally domesticated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to the last Ice Age, about 10---12 thousand years ago, two wild horse species existed in North America. They died out due to climate change and hunting.</td>
</tr>
<tr>
<td>Rodeo originates from the times of the establishment of the Spanish Missions: ranchers allowed their cattle to freely graze the open fields, and once or twice a year vaqueros from several ranches worked together to round them up.</td>
</tr>
</tbody>
</table>
Irrigation was so important to the Spanish Colonial Settlers that they measured cropland in *suertes* – the amount of land that could be watered in one day.

Piñata came from the Spanish, but it is traced back to the Ancient China, where clay pots were used instead of papier mache and they were filled with seeds. Chinese piñatas were associated with the celebration of the New Year. Spanish and Mexican piñatas were originally used to celebrate religious holidays, such as Lent.

The technology of the acequias was brought to Spain by Arabs during their occupation, then the Spanish brought it to North America. Some Native American tribes also used this method of irrigation.
Texas holds 6 of 12 world record rainfall rates in 24 hours or less.

The acequias are very efficient. In North Central New Mexico, only 6% of water evaporated from the acequias (including evaporation through plants), 93% returned to the river (33% as groundwater and 60% as irrigation tailwater).
Native Americans traditionally planted corn in hills, in a complex system known as the *Three Sisters*: the (1) **corn** provided support for the (2) **beans**, and the beans provided nitrogen; and (3) **squashes** provided ground cover to stop weeds and inhibit evaporation by providing shade over the soil.
### Mission San Juan: Sustainability Then and Now
An Interdisciplinary Lesson Unit

<table>
<thead>
<tr>
<th>Grade: 7</th>
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<tbody>
<tr>
<td>Content Areas Addressed: <strong>Science and Social Studies</strong></td>
</tr>
<tr>
<td>Duration: 3 Days - including Pre and Post visit instruction</td>
</tr>
<tr>
<td>Setting: Classroom and Mission San Juan</td>
</tr>
</tbody>
</table>

#### Materials
- San Juan Mission Tour
- Student Handout
- Water Test Kits
- pH probes
- Digital Cameras
- Stop Watch
- Paper and Pen
- Maps: San Antonio de Bexar, Poli Comes to Texas, Life in the Missions, Voyage a la Laguna San Miguel, Report on Mission San Jose

#### Vocabulary and Background Information
- **Ecoregion** – pattern of ecosystems with combinations of soil and landform that characterize region.
- **Watershed** – an area of land

#### Lesson Overview

The purpose of **Mission San Juan: Sustainability Then and Now** is to develop students’ ecological intelligence by framing the idea of sustainability within an interdisciplinary context based on history and science. The central idea of sustainability; which can be thought of as “the capacity to endure” is interpreted within a variety of scientific and historical contexts that will engage students’ ability to think critically.

**Mission San Juan: Sustainability Then and Now** is intended to be used during a field excursion to Mission San Juan and is structured as a historical and scientific investigation into the cultural and ecological sustainability of Mission San Juan. The aim of this curriculum is for students to see how the mission can be used as a model for current and future cultural and ecological sustainability.

The program is divided into three time blocks: pre-visit, on-site visit, and post-visit. The pre-visit lesson introduces the investigation and reviews the relevant science and social studies content from the 7th grade standards. The on-site visit focuses on three primary locations at the mission: the historic grounds, the outdoor classroom at the fields, and the animal enclosure/acequia madre. The post-visit lesson is designed to develop students’ ecological intelligence by asking them to think critically about cultural and ecological sustainability in the future and the potential role they will play in that sustainability.
where all of the ground and surface water from the area drains into the same place.

**Mission** – a settlement founded to spread Christianity to the people of the area.

**Sustainability** – ability to maintain ecological processes over long periods of time; ability of an ecosystem to maintain its structure and function over time.

-Missions were Spain’s main way of colonizing and were expected to support themselves. -Missions were used to convert the Native Texans to the Catholic faith and make loyal subjects to Spain.

### Objectives

Students will:

- review/preview science and social studies content standards and skills (See TEKS list, below)
- conduct a descriptive investigation on factors affecting sustainability within a historical and scientific context.
- demonstrate ecological intelligence as an understanding of the interdependence that exists between all parts of a system, including the self.
- apply their understanding of sustainability in the past to make predictions and recommendations for ensuring sustainability into the future.
- recognize that a cultural sustainability is evidenced in the passing down of ideas and traditions in the cultural commons and there are still ways for one to exercise ecological intelligence and engage in the cultural commons that remain today.

### Outline Of Learning Experiences

#### Pre-Visit Lesson Set

(Classroom setting)
The investigation is focused on the following TEKS clarification statement from the TCMPC: Missions were Spain’s way of colonizing and were expected to support themselves (self-sustaining).

**Interdisciplinary Discussion Question**

- **What does self-sustaining mean? What is sustainability?**

  Teaching note: Sustainability can be considered the capacity to endure. For the purpose of this program, the idea of sustainability will be applied in terms of cultural sustainability (soc studies) and ecological (science) sustainability.

#### Science Lesson Set

(Topic: Ecological Sustainability)

**Activity 1: The mission as model of a plant cell**

TEKS Addressed: 7.3B&C, 7.12 D,E, & F

Big Idea: This activity aligns with one of the TCMPC performance indicators for Science Unit 7: Create a cell analogy (e.g., cell to a school, factory, etc.) and relate the structure and function of the cell organelles to the structures in the analogy. In this case we want students to use the mission as the analogy for the cell. The purpose is to lead students toward the idea that just like a cell must perform certain functions to sustain itself, the mission must perform similar functions for it to sustain itself.
Description: In this activity, students relate the sketch of the mission to the structure of it to a plant cell. Review or provide students with a list of plant cell organelles and their functions and ask students to discuss those roles and compare to that of the mission’s inhabitants.

List of organelles: cell wall, cell membrane, nucleus, mitochondria, chloroplast, vacuole, ribosomes, golgi apparatus, lysosomes, etc.

Discussion Question:
- What roles are we not sure of? What questions might we want to ask the ranger?

Activity 2: The mission and the ecosystem
TEKS Addressed: 7.8C & 7.10B

Big Idea: This activity is designed to get students to think about the impact on the ecosystem resulting from the establishment of the mission. Students should consider the impact on the food web of the prairie before and after the mission arrived? What was the effect on the biodiversity of the ecosystem? What changes happened to the plants and animals? Did some disappear? Did some suddenly appear? What changes occurred to the resources in the environment (food, water, etc)?

Discussion Question
- How did the building of the mission effect the environment where it was built?
  Teaching Note: Teachers should use the questions provided in the big idea above to help facilitate discussion toward the idea that the mission had to maintain balance with the surrounding environment if it was going to be self-sustaining.

Students should brainstorm about what questions they can ask about how the mission maintained that balance with the environment.

Social Studies Lesson
(Topic: Cultural Sustainability)

Activity 1: Was this a good place to build a mission?
TEKS addressed: 7.8B & 7.10A

Big Idea: This activity aligns with TCMPC Performance Indicator: for Social Studies Unit 4; Spanish Colonial Unit- Explain where and why the Spanish settled where they did. Student should recognize the both the environmental reasons for establishing the mission where it did as well as the location relative to native persons and other established colonies, such as the Germans to the north and the French to the east.

Description: Provide students with a map that indicates the location of the missions as well as other colonies and native settlements. The students should recognize the placement of the missions is along rivers and near resources. They should also indicate reasons relative to the proximity of the other colonies for the purpose of spreading the Spanish culture.
Discussion Question:
- How does this location allow the mission to be self-sustaining?

Activity 2: How did the mission change the environment both physically and culturally?
TEKS Addressed: 7.10A & 7.19C

Big Idea: Students should understand about life in the mission and the interrelatedness with the environment, the neighboring colonies, and the native inhabitants. Students can be provided readings found in previous NPS curriculum products to inform how they answer the discussion questions (Map of San Antonio de Baxar, Poli Comes to Texas, Life in the Missions, Voyage a la Laguna San Miguel, Report on Mission San Jose).

Discussion Question:
- How did the inhabitants of the mission adapt to or change the environment, including the cultural environment?

Visit Lesson (on-site)
This lesson is designed to be used during the visit to Mission San Juan. The lesson is organized into the three designated areas of the missions: the historic mission grounds, the fields/outdoor classroom, and the animal enclosure/acequia madre.

Arrival
- Upon arrival at Mission San Juan students will be given a resource protection message. This message has been titled “Sustainability of the Missions” to bring it in line with the main idea of this program. “Sustainability of the Missions” (aka RESOURCE PROTECTION MESSAGE)
- Big Idea: The missions are old and things “breakdown” over time naturally (erosion, weathering, etc) and by human interactions (careless or otherwise). Natural forces such as weathering are slowly destroying historic sites. Unfortunately, even more destruction is caused through human carelessness and senseless acts of vandalism. This makes connections to the overarching idea of sustainability of culture and history and identifies an area for discussion of sustainability into the future.

SITE A- Historic Mission Grounds
Big Idea: Life in the missions and the purpose of the missions for Spain are the primary focus of this portion of the tour. Many of the artifacts and areas seen on this portion of the field trip relate to the mission as a community or society. This is the primary location for students to engage with ideas associated with cultural sustainability.
- Ask students to describe the function, purpose, or meaning of the structures, artwork, general areas of the mission, etc.
- Students are encouraged to ask any of questions that they brainstormed during the pre-visit activities.
- The missions are naturally connected to San Antonio. What are things that you notice around the historic mission grounds that remind you of other people or places in San Antonio?

SITE B-FIELDS (OUTDOOR CLASSROOM)
This site is located toward the back of the mission and will include some time walking. Students can
see the *acequia* on the journey and the areas where river water can be diverted into the fields.

Big Idea: The importance of environmental knowledge is the focus of this section of the visit. Students are presented with information about how knowledge of the land such as soil composition and the importance of crop rotating are vital to sustainability over time.

- Note how the fields were all made a certain size so that they could be watered in one hour.
  - Discussion: What is the purpose of being this specific with the size of the field? Why not just make the field twice as big and let the water flow for two hours? What factors play a role in the proper amount of water to provide?
- The crop rotation schedule can be explained to the students.
  - Discussion: Why is it important to rotate the crops? What effect does the planting of crops have on the environment?

**SITE C-ANIMAL ENCLOSURE and *Acequia Madre***

Exploration of this site leads students alongs the *acequia madre* and provides for opportunities to explore the specific characteristics of the *acequia* system. Students can also see the location of an animal enclosure.

Big Idea- Students should recognize the importance of water to the sustainability of the mission as well as understanding the importance of taking care of the *acequia madre* as it connected to the smaller *acequia* which watered the fields.

*Acequia Discussion Question:*

- How important is the river to the sustainability of the mission?
- How could we check the health of the river?
  - Optional Data Collection: Students will be provided the opportunity to use a water test kit and a pH sensor to collect data on the river. If time permits students may also attempt to calculate the flow of water through the *acequia madre* using a stop watch and fisherman’s cork. Teachers may choose to break students up in data collection groups and share the data with everyone at a later time.

*Animal Enclosure Discussion Question:*

- What is the purpose of keeping animals in the mission?
- What are the positive and negative effects of keeping animals at the mission?

**Post-Visit Lesson (classroom)**

The activities listed below are designed to engage students in critical thinking concerning ecological and cultural sustainability. The purpose of this lesson is to develop students' awareness of their own interrelatedness to the environment and all of the other components of that environment. Students will be introduced to the idea of returning to the cultural commons for cultural sustainability and developing ecological intelligence for ecological sustainability.

Science Lesson – Ecological Intelligence

The science lesson will focus on the connections between the mission’s ability to sustain itself in the environment and contrast that idea with sustaining even larger communities like San Antonio, the United States, or even the planet.
Explanation of ecological Intelligence for students:

- Ecological intelligence is the ability to understand that every piece of a system is responsible for maintaining the sustainability of that system. There is a cause and effect created with the environment and someone who is ecologically intelligent tries to minimize the harmful effects to the system.

Discussion Question 1:
- What are some positive and negative impacts on the environment of the missions?

Discussion Question 2:
- Contamination and pollution was a contributing factor to many of the health issues faced by early inhabitants of the missions. What were the sources of contamination and pollution for the mission?

Discussion Question 3:
- What are the sources of pollution and contamination today? How does our historical understanding of sustainability affect the decisions that we make today? Give examples.

Discussion Question 4:
- What are some ways that you could exercise ecological intelligence as a consumer for the benefit of sustainability?

Social Studies Lesson

The social studies lesson focuses on the idea of Spanish colonization period in Texas which was part of a larger European colonization of the area that included German and French colonies as well.

Big Idea: The big idea of this lesson is that Mission San Juan was part of a group of missions, that were themselves part of a group of Spanish settlers that included private citizens and military personnel. The Spanish settlers were also part of a larger population of inhabitants of Texas that included other Europeans and native groups. The “cultural commons” is a term that refers to the “place” that cultural knowledge is shared among a community. As the communities merged and synthesized a new larger culture that incorporates components of each subculture. As a result the cultural commons is not what it once was, but it still exists.

Discussion Question 1:
- Based on your experiences from the visits, share what you saw at the missions that reminded you of people or places in San Antonio?

Teaching Note: The cultural commons is considered any place that knowledge, skills, activities, and relationships that exist in a community. These are intergenerationally passed along through face-to-face relationships that may include mentoring. Participation in different aspects of the local cultural commons enables people to discover personal interests, develop skills, and to engage with others in ways that strengthen the sense of community belonging and responsibility.

Discussion Question 2:
- Where places that you know of that the cultural commons are are still active? In your neighborhood? In San Antonio? In Texas? Explain your answer.

State Standards Addressed

Science

- 7.8C: model the effects of human activity on groundwater and surface water in a watershed.
Specificity Statements: water pollution; water use and conservation.

- 7.8B analyze the effects of weathering, erosion, and deposition on the environment in eco-regions of Texas: Missions are in the Blackland Prairie.

- Use of tools-
  Water Test Kits, pH probes, Digital Cameras.

- TCMPC Performance Indicator: identify factors contributing to water pollution (e.g., effects of changes in pH on ground water).

Social Studies Knowledge and Skills
7.8B- Specificity Statement: Analyze geographic distribution during Spanish Colonial period

- 7.10A- Identify Ways Texans have adapted to and modified the environment and analyze the positive and negative consequences of the modification. Specificity Statement: Water Wells; Killed Animals and Grew Crops

- 7.19C- Identify examples of Spanish influence. Specificity Statement: Aceqias- wells (aquifers)

  TCMPC Performance Indicator: Explain where and why the Spanish settled where they did (per 7.8B)

7.10A- Specificity statement: environments provide for basic needs such as climate, vegetation, and location

- 7.10B- Describe how biodiversity contributes to the sustainability of an ecosystem.
# Life In Mission San Juan: A Historical Literacy Approach

**Lesson Overview**

The purpose of this lesson is to guide students through their appreciation and understanding of life in Mission San Juan in both an historical and modern context. Students will use authentic literature, historical investigation and a field trip to the mission to lead them in their comprehension of mission life in a historical context.

This lesson will be organized into four main learning/investigative experiences:

1. An exploration into Spanish Colonialism in Texas
2. An examination of the contributions and culture of the Indigenous tribes surrounding Mission San Juan
3. A site visit to Mission San Juan
4. An appreciation for the vulnerability of Mission San Juan and the importance of historical preservation through expository and persuasive writing experiences

The lesson will begin by focusing on what the Spanish Mission system is; its founding, builders, experiences and eventual collapse. Students will explore the lives of Spanish Colonist and the Indigenous tribes in this investigation of Mission Life. Students will engage in a guided site visit to Mission San Juan where they will participate in a self-guided tour of the Mission grounds, including the church, farm, and acequia. This lesson will highlight the contributions of the Indigenous cultures of Texas and the subsequent exploration and colonization by European explorers.

This lesson will focus on life in the Missions built by the Indigenous and the effort to preserve them for future generations.

The lesson will then evolve into discovery of the UNESCO Committee and their work in world heritage preservation. Students will connect their skills in expository and persuasive writing to reveal their understanding and appreciation of Mission San Juan and the people who lived there.

## Materials

- San Juan Mission Tour
- Student Handout
- Text: *With Domingo Leal in San Antonio 1734* (available in pdf)
- Student Handouts:
  - Guided Reading Worksheet
  - Native American Tribe Compare and Contrast Handout
  - Mission San Juan Capistrano Secondary Source from National Parks Service

## Vocabulary and Background Information

- Catholicism
- Catechism
- Friars
- Missionaries
- Mission
- Presido
- Assimilate
- Epidemic

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**Grade:** Seventh Grade  
**Content Areas Addressed:** Language Arts and Social Studies  
**Setting:** Classroom and Mission San Juan
### Acequia Pueblo

**Neophyte** - a person newly converted to Christianity  
**Mendicant** - A poor group of begging priests  
**Colegios** - Colleges  
**Criollos** - Born in the Americas  
**Peninsulares** - Born in Spain  
**Mestizos** - Indian and Spaniard  
**Ranchos** - Ranch lands  
**Ejidos** - Common Lands  
**Presidio** - Military Fortress

### Objectives

Students will:

- Develop an appreciation of Mission San Juan as an important example of Spanish Colonialism in Texas.  
- Consider the perspective of native people in Texas at the time of Spanish Colonialization  
- Understand the cultural transformations that took place as a result of the Spanish Colonial Mission system and the lasting effects of this system on Texas culture.  
- Recognize the cultural and technological contributions of Spanish colonists and indigenous people.  
- Articulate an appreciation of Native cultures in Texas  
- Develop skills in critical thinking concerning the establishment of Spanish Missions in Texas  
- Synthesize information from their reading to create a visual representation and advertisement for Spanish Colonial Mission life.  
- Learn about the UNESCO Committee and their work in world heritage preservation.  
- Identify the UNESCO criteria for achieving designation and write an expository essay with the objective of convincing the selection committee to choose Mission Trail as their next site.  
- Connect their skills in expository and persuasive writing to reveal their understanding and appreciation of Mission San Juan and the people who lived there.

### Outline Of Learning Experiences

**Exploration of Spanish Colonialism in Texas**

When the Spanish settlers had arrived in Texas, they established the Mission-Presidio system. They “volunteered” Native American groups into living and working the land on the missions and tried to convert them into the Catholic faith. It is important for students to understand about the ways of life for people in the missions.  

In this lesson students will:

- **Evaluate** the need for a Mission-Presidio system  
- **Analyze** the reactions of the Native peoples of Texas  
- **Understand** why this system failed  
- **Describe** the importance of a filibuster  
- **Identify** the causes of the Mexican Independence Movement  
- **Explain** the longstanding effects of Spanish Rule in Texas
History: This lesson aligns with the theme of history through the explanation of how Texas developed from a group of nomadic native tribes into an organized society.

Culture: This lesson aligns with the theme of culture through the comparison and contrast of the native peoples of Texas and the Spanish settlers who invaded their lands.

Geography: This lesson aligns with the theme of geography through the discussion of the missions and why they were built in the regions of Texas that they are located today. It is also exemplified through the discussion of what crops were planted and cultivated in the different regions.

Important Background Knowledge for Teachers:
- The teacher must have a thorough knowledge of the San Antonio Missions, as well as the other missions in the state of Texas, and the people residing there. They must also know how the Spanish structured the missions and established a new way of life for Native Americans residing there. The teacher must also be able to describe the failure of the Mission-Presidio system and the movement towards Mexican independence.

Topic: Establishment of Missions and Presidos
- Activity: The students will create a timeline of the Mission system in Texas. They will need to include the names of the people who started the missions, the names of the missions themselves, and dates when each mission was founded.
- Students complete guided reading sheet
- Using information from their guided reading sheets, students will work in pairs to create advertisement posters that encourage Native Americans to come live at the mission

Topic: Fillibusters and Unrest in Texas
- Activity: The students will define the word “filibuster” in their own words. In groups of four, the students will become fillibusters and decide what issue they will create a “war” for. They will need to answer the following questions: What is the issue? How important is this issue to you? Is war the only option? If so, how will you fight this war? If not, what are some other options that you would choose? They will present their answers to the class when they are finished.

Topic: Mexican Independence
- Activity: The students will create a cause and effect chart for the Mexican Independence. They will need to include the following: important events, documents written, people who began the Independence movement, and dates of rebellion.

Topic: San Antonio Missions
- Activity: The students will create a model of Mission San Juan. They will need to include: The church, the farms, the living spaces, the courtyard, the mission convent, infirmary, storage areas for food supplies, a list of foods grown, and the population of the mission.
Topic: Telling the Story
Students will read and discuss historical fiction. The story, *With Domingo Leal in San Antonio 1734*, narrates the life of a young boy who lived in San Antonio at the time of Spanish Colonialization in Texas. Students will connect this story to their historical knowledge mission life.

Lesson 2 - Mission San Juan: The Indigenous Perspective

Teacher will give an introduction into the Indigenous History of Texas and read aloud a primary source document from a Native perspective. Connections to modern times will be stressed and students will be asked to identify any Indigenous history in their family.

- Split the students into three groups, in which they are the Nazonis, Comanches, and Apaches.
- Read the secondary documents describing the Nazonis, Comanches, and Apaches.
- Answer the questions from the handout associated with the documents.

Students will compare the various tribes of Texas and describe some key differences and similarities between them. Focus will be given to area of Texas and how long of time frame is their record of the people.


Students will again compare and contrast what they have learned about native cultures versus what they previously thought or held true. Introduce Unit Vocabulary.

Students will divide into groups based on the various tribes they have studied and attempt to form a cohesive unit as they prepare for a change to their way of life.

Discussion Question:
Students will determine if the visitors coming are a threat or opportunity.

Activity: Students will write and persuasive essay/advertisement for life in the mission and indigenous people should come and live there.
Visit Lesson - Explore, Examine and Experience Mission San Juan

This lesson is designed to be used during the visit to Mission San Juan. The lesson is organized into the three designated areas of the missions: the historic mission grounds, the fields/outdoor classroom, and the acequia. Students will visit five specific stations where they will be asked to gather information and reflect on life in the mission. The themes of community, vulnerability and sustainability should resonate through the guided discussions that occur at each station. Students will also have a “Station Guide” that they can use to record their findings and thoughts.

STATION 1 – (Entry gate)
Introduce students to the major themes of community, sustainability and vulnerability
Ask students to define community.
The goal is for students to see themselves as part of the Mission San Juan community - by learning about the lives of the people who lived here ... and discovering ways that their life is connected to the lives of Mission residents.
Remind students that in 1731, South Texas (was not yet Texas!...) Ask students to consider what the landscape might have looked like. Who/what would have lived here? What would have been frightening? How could the mission provide a sense of protection and security?
Ask students to reflect on the then and now of the mission.
Discuss:
- What did you notice as you drove into the mission?
- Are there signs of development in the community?
- How does that development influence your understanding of the Mission in this time and place?
- What natural resources are available here?
- Do you think they would have been available when the Spanish first settled this area?
- How do you think this landscape has been changed because the Spanish decided to settle here?
- What are some specific examples of those changes?

STATON 2 – Interior of the Mission Walls
Introduce students to the people who would have been living inside the mission walls. Spaniards, Friars, Governors and Native Texans would have all been living inside the mission. Introduce the cultural shift from a nomadic to a sedentary community. Ask students to consider the issues of food resources, work, power, social roles and responsibilities, illness, and vulnerability.

Guiding Discussion Questions:
- What would the Spanish need to facilitate the creation of a self-sustaining community?
- What do you notice when you first enter the mission walls – why is this important?
- How do you picture daily living experiences of people living in the mission?
- How would this contrast to the experiences of people living outside of the mission walls?
- How do you think native people felt about the change?
- What did the people need to know? Who were the teachers? Consider issues of language, spirituality, roles and rules.
- How are people changed by their work and what they learn? Why is this important to culture?
STATION 3 – Farm
The farm addresses issues of sustainability and food security. The people living in the mission were responsible for growing and harvesting their own food.
Discussion Questions:
• What would have been challenging in this process? Weather – need for water
• How did the people adapt to these challenges?
• What is needed to produce enough food to take care of a growing population?
• Who was responsible for the labor of food production?
• What other food resources would have been valuable to the mission?

STATION 4 – Acequia
The acequia represents and ingenious technological intervention to help with the sustainability of mission life. The acequia allows people to control and manipulate a finite amount of water resources and use them to water their crops. The acequia is an engineering marvel. The NPS service provides an excellent demonstration of how the acequia works and how water can be channeled to water the crops in the farm. The acequia also presents another example of vulnerability – what happens if the water is contaminated?
Discussion Questions:
• Why is irrigation of farmlands so important in South Texas?
• What drives the water in the acequias?
• Who built the acequia system?
• What is the role of the riparian zone in the acequia system? Is it important? Why?
• What can YOU do to preserve water and protect the limited water sources?

STATION 5 – Exit – Leaving thoughts and legacies
Even though a great deal of time has passed since Mission San Juan was active, the legacy of the Mission remains alive through the culture and values in San Antonio and in South Texas. We are a community - with all of the challenges and triumphs that come with being a community.
Before you leave today, name (or think of) one thing that you learned from your time at Mission San Juan. And now think of one person to tell about what you learned. If you do that, you will have passed along the wisdom of Mission San Juan.
Discussion Questions
• What are some things that you learned from the Mission residents about community? About sustainability? About vulnerability?
• Why do you think this place is important? How does it represent our Heritage?
• How can we continue to protect it? - this leads into a post visit writing prompt.
• Why would it be important for other people to visit this mission?

Post Visit Writing Prompts:
Persuasive Writing:
Why is it important for schools to take 7th grade students on field trips to Mission San Juan? Please explain how visiting the Mission is beneficial for the students, schools, and the historical Mission.
Expository Writing:
Review the criteria for the UNESCO COMMITTEE and discuss the possibilities of attaining the designation
Students will focus the day Identifying vulnerabilities to the Missions and San Antonio River.
Expository Writing Prompt:
  • Why should the UNESCO selection Committee choose the San Antonio Mission-Trails as their
    next World-Heritage Site?
  • Explain how conservation and preservation efforts are aiding the Mission- Trail
  • Provide Pros and Cons for being designated a World-Heritage Site

State Standards Addressed – TEKS

§113.19. Social Studies, Grade 7 –
History 1(A)(B), 2(C)(D), 9 (B)
Geography 9(B)(C), 10 (A)(B), 11 (A)(B)
Culture 19 (C)
Science, Technology and Society 20 (A)(C)(D)
Social Studies Skills 21 (A-H), 22 (C &D), 23 (B)

§110.19. English Language Arts and Reading, Grade 7
(b) Knowledge and Skills
Reading (1)(2)(6)(9)
Writing 14 (A,C,D, E); 17 (D), 18 (A-C),
Oral and Written Conventions 19(C), 20 (A &B)
Listening and Speaking 27
## Rubric for Mission Model Project and Presentation

<table>
<thead>
<tr>
<th>Criteria Point Value</th>
<th>Points Earned</th>
<th>Excellent</th>
<th>Good</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Mission</strong></td>
<td></td>
<td><strong>Excellent</strong></td>
<td><strong>Good</strong></td>
<td><strong>Needs Improvement</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Up to 10 points earned</td>
<td>Up to 5 points earned</td>
<td>Up to 3 points earned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Mission model is created with the specified parts. The students labeled all parts of the mission and completed with the use of household items. The project was turned in on time.</td>
<td>The Mission model is created with some of the parts. The students labeled part of the project and used other materials that are not included in the list of household items. The project was turned in a day late.</td>
<td>The Mission model does not have the specified parts. The students did not label all the parts of the mission and did not complete the project using household items. The project was turned in late.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td></td>
<td>The presentation was done within the fifteen minutes allotted. The presentation was clear and everyone in the group participated. The students used visuals to complete the presentation.</td>
<td>The presentation went over by two minutes. The presentation was missing key information. Only a two of the students spoke for the whole group. The students read their information to their audience.</td>
<td>The presentation went over by five minutes. The students were unprepared and only one person presented the information. The students did not include visuals and the presentation did not have clarity.</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td></td>
<td>The resource list followed the MLA format for citations.</td>
<td>The resource list had minor errors in following the MLA format for citations.</td>
<td>The students did not have a resource page.</td>
</tr>
<tr>
<td><strong>Mission Reflection</strong></td>
<td></td>
<td>The students wrote a thorough reflection on what they saw at the San Antonio Missions.</td>
<td>The students did not include what they enjoyed the most from the trip. They wrote one word.</td>
<td>The students did not write a reflection for the San Antonio Missions or they did not answer the</td>
</tr>
</tbody>
</table>

Curriculum funded by a grant from The Colorado Plateau Cooperative Ecosystem Studies Unit
<table>
<thead>
<tr>
<th>Creativity</th>
<th>Missions. They included key aspects of the trip that they enjoyed the most and included what they learned.</th>
<th>answers and did not elaborate on aspects of the trip that they learned the most from.</th>
<th>questions correctly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of Writing</td>
<td>The model shows imagination and innovation. The students created a model that is unique to their personalities and their likes. They went above and beyond what was directed of them.</td>
<td>The model followed the plan of the missions in San Antonio. The students did not add anything to their mission that would make it unique.</td>
<td>The model was completed without any thought to how it would look. The students included no creativity, turning in a project that still needs completion.</td>
</tr>
<tr>
<td>Total Points</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Nazoni

Instructions: Read the document from the National Parks Service, focusing on the section entitled The Development of a Community. Answer the following questions in complete sentences.

1. Imagine that you are one of the Nazoni Indians. How would you react to these “pale faced” men and women forcing you onto this new home?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
2. The Apaches and Comanches are invading and terrorizing your new community. Why do you think they would do this to you?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
3. What are some other problems you face on the mission?

_________________________________________________________________
4. Draw a picture of life on the mission, including what the mission would look like from your point of view and the work that you do?

Name: _____________________ Date: ___________ Period: ______

Apache

Instructions: Read the document from the National Parks Service, focusing on the section entitled The Development of a Community. Answer the following questions in complete sentences.

1. The Nazonis lived at Mission San José de los Nazonis and served their needs. How would you react to this treatment and what needs do you, as a tribe, feel need to be met?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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2. How would you react to these strangers invading your lands?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. Why is your tribe attacking the Nazonis? What have they done to you?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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________________________________________________________________________
Comanche

Instructions: Read the document from the National Parks Service, focusing on the section entitled *The Development of a Community*. Answer the following questions in complete sentences.

1. The Nazonis lived at Mission San José de los Nazonis and served their needs. How would you react to this treatment and what needs do you, as a tribe, feel need to be met?

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2. How would you react to these strangers invading your lands?

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3. Why is your tribe attacking the Nazonis? What have they done to you?

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4. Draw a picture of what you see on the missions on a daily basis.
4. Draw a picture of what you see on the missions on a daily basis.
Welcome to Mission San Juan Capistrano, one of the five Spanish Colonial Missions in the San Antonio, Texas area. Learn more about Mission San Juan by taking this self-guided tour of the grounds. This site will help you to experience the Mission and the history that defines this region.

A Self Guided Tour of Mission San Juan Capistrano

San Antonio Missions National Historical Park Website:
http://www.nps.gov/saan/index.htm

Information about guided tours at the San Antonio Missions:
http://www.nps.gov/saan/forteachers/index.htm
Explore, Examine, Experience
Mission San Juan Capistrano

Locating Mission San Juan Capistrano

Address:
9101 Graf Rd, San Antonio, TX 78214

Parking:
Available at the Mission entry. Free.

Website (National Park Service):
http://www.nps.gov/saan/planyourvisit/sanjuan.htm
(http://www.nps.gov/saan/planyourvisit/sanjuan.htm)

How to use this Self Guided Tour

This self guided tour highlights some of the features of Mission San Juan Capistrano. The tour does not have a specific route, but you will be guided around many different parts of the Mission - inside and outside of the Mission walls.

Use your senses to experience your surroundings: listen, look, smell, and touch (with care and only as permitted). Take time to read the information cards available around the Mission.

Bring a journal, phone, or camera to record your memories as you Explore the Mission. These are mementos to take with you from your visit. Your experience at the Mission can be enhanced by the audio (phone) and video features available on the tour website. These features may incur phone and/or data plan costs.

Mission San Juan has an active church congregation and hosts a private residence. Please respect the church congregants' privacy and associated activities.
San Antonio Missions National Historical Park

Explore, Examine, Experience
Mission San Juan Capistrano (/)

HOME (/) PREPARATIONS (/PREPARATIONS.HTML) SAN JUAN FROM ABOVE (/SAN-JUAN-FROM-ABOVE.HTML)
SELF GUIDED TOUR (/SELF-GUIDED-TOUR.HTML)

Mission San Juan From Above

This is a photo of Mission San Juan and its surrounding area. What do you notice?

See if you can locate the following on the photo:
(1) San Antonio River
(2) San Juan Mission Wall
(3) Mission Church
(4) Labores (farmland)
(5) Acequia (irrigation ditch)
(6) Livestock Enclosure/Corral
Mission San Juan Capistrano represents both the past and the present. Almost 300 years ago, the people who lived, worked, and worshiped at Mission San Juan established a foundation for the communities that exist in San Antonio and South Texas, today.

**TOUR EXPLORE**
The Mission has existed for almost 300 years. From the entry to Mission San Juan, look all around you. Can you find something that might have been here 300 years ago? What about something that is from the present time?

Draw or photograph at least 1 thing that is from the long past and 1 thing that is from the present time.

**Jump Start Your Knowledge!**
Review the information contained in the National Park Service Brochure for Mission San Juan.

Learn more!

- Video Link
  - East Texas Beginnings (NPS, approx. 5 minutes)
  - Cell Phone Dial In Information
    - English: Call 210-852-2407 and Press 1 to hear East Texas Beginnings
    - Spanish: Call 210-852-2408 and Press 1 para Los Inicios del este de Tejas
Community

Lifestyle: the typical way of a life for an individual, group, or culture

The Mission residents consisted of Spanish missionaries, soldiers, and recruited native people ("Indians") from the South-Central Texas/Northern Mexico region. The Spanish brought a new lifestyle to the native people - a settled, agrarian (farming) lifestyle. Previously, the native people were nomadic hunter-gatherers who roamed the region in small bands to locate resources, such as food and water.

**TOUR EXPLORE**
Draw or photograph an example of the living quarters for residents of Mission San Juan.

**TOUR EXAMINE**
Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:
1. When was Mission San Juan build at this location on the San Antonio River?
2. Describe a typical day for a person who lives (a) hunter-gatherer (nomadic) lifestyle and (b) agrarian (settled) lifestyle.

**TOUR EXTEND**
Think about a typical day in your life. What kind of lifestyle do you live: nomadic or...
Mission San Juan exists at this location because of one important feature: the San Antonio River. The river is also known by its native name, Yanaguana. In the harsh climate of South Texas, water is an essential natural resource. Water makes it possible to grow crops, sustain livestock, and maintain human communities.

**TOUR EXTEND**
Think about the many ways that you use water in your daily life. Compare and contrast your water use with the ways that the Mission residents used water.
Acequia System

Acequia system: set of irrigation ditches or canals that transport water

Sluice gate: gate used to control the flow of water through the acequia system

The acequia system at Mission San Juan Capistrano is an engineering marvel! The Spanish introduced the acequia system of irrigation to Mission San Juan. The Native residents provided the labor to dig the acequias, and the system was managed by a community leader called the mayordomo.

The network of ditches that make up the acequia system begins at the San Antonio River - where a dam was built to divert water into the acequia madre (mother ditch). Smaller ditches branch off from the acequia madre and move water to locations around the Mission - including orchards and farmlands. The flow of water is controlled by opening and closing sluice gates along the length of the acequias. The end of the acequia reconnects with the San Antonio River so that the remaining water returns to its natural origin.

**TOUR EXPLORE**
Draw or photograph a sluice gate in the Mission San Juan acequia system.

**TOUR EXAMINE**
Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:
1. How might the acequia system be considered a "sustainable" design?

Learn more!
Video Link
http://youtu.be/Jq2qLgWUCQA
(http://youtu.be/Jq2qLgWUCQA)
(refer to all San Antonio Mission Acequias)

Cell Phone Dial In Information
English: Call 210-852-2407 and Press 4 to hear Mission San Juan Acequia
Spanish: Call 210-852-2408 and Press 4 para La Acequia de San Juan

**TOUR EXTEND**
Do you use water in a way that would be considered "sustainable?"
San Antonio Missions National Historical Park

**TOUR EXPLORE**
Draw or photograph the orchard and fields at Mission San Juan.

**TOUR EXAMINE**
Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:
1. Identify 4 crops that were originally grown on the Mission grounds.
2. Why is farming a sustainable way to have food sources?

**TOUR EXTEND**
Imagine that your family decided to eat only the crops that you could grow in a garden.

The residents at Mission San Juan lived a sustainable life. They ate the food that they grew on the labores and in the orchards that were irrigated by the acequia system. However, farming was a labor intensive activity - and a new lifestyle for the Native Texans. Planting and tending the farms, picking the crops, and managing the fields required many, many hours of work and attention by the Native residents at Mission San Juan. This agrarian (farming) lifestyle required the Mission residents to work from sun up to sun down.

Learn more!
Video Link
Farming & Ranching (NPS, approx. 5 minutes)
http://www.nps.gov/saan/photosmultimedia/video-gallery.htm

(http://www.nps.gov/saan/photosmultimedia/video-gallery.htm)
What would you plant? How would you decide how much of the crops to plant?
Livestock & Ranching

*Vaquero*: cowboys who managed the herds of cattle at the Mission ranch.

The main measure of wealth at Mission San Juan was by the number of cattle on the Mission ranch. These cattle were used for food, labor, and trade. Contemporary images of cowboys originated from the dress, life, and work of the Native Texas who learned to manage the large herds.

**TOUR EXPLORE**

Draw or photograph the livestock enclosure.

**TOUR EXAMINE**

Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:

1. What kinds of livestock animals were kept in the enclosure at the Mission?
2. Why do you think that herds of cattle were kept on ranches far away from the Mission?

Learn more!

**Video Link**

Mission Vaqueros (NPS, approx. 5 minutes)

http://www.nps.gov/saan/photosmultimedia/video-gallery.htm

**Cell Phone Dial In Information**

English: Call 210-852-2407 and Press 14 to hear Rancho de las Cabras (contains references to Mission Espada)

Spanish: Call 210-852-2408 and Press 14 para Rancho de las Cabras (contains references to Mission Espada)
Culture

Native (indigenous) people: bands of nomadic people who lived in the South Texas/Northern Mexico (Tejas) region for thousands of years before the Spanish arrived.

Spain: the country of origin for people who came to the Americas and established a different culture, language, and lifestyle.

The blending of cultures is a defining quality of Mission San Juan; however, the purpose of the Spanish Missions was to teach the native people how to be Spanish citizens - practicing the Catholic religion, speaking the Spanish language, wearing clothing acceptable to Spanish culture, and adopting values of Spanish people.

**TOUR EXPLORE**
Draw or photograph at least 1 thing that reflects the cultural influence of Spain on the Mission.

**TOUR EXAMINE**
Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:
1. Identify and list the indigenous tribes that inhabited the Mission.
2. What name did the Spanish call these tribes as a collective?

Learn more!

Video Link
New Skills, New Life (NPS, approx. 5 minutes)
http://www.nps.gov/saan/photosmultimedia/video-gallery.htm

Cell Phone Dial In Information
English: Call 210-852-2407
Spanish: Call 210-852-2408
Religion

Catholicism: the Roman Catholic religion. This is the religion of the Spanish missionaries.

Friar: religious missionary who takes vows of poverty, chastity, and obedience and who serves the Mission as spiritual leader and teacher.

In the 1700’s, Franciscan Friars managed the daily spiritual and secular activities at Mission San Juan. The Friars converted native people to Catholicism, led daily spiritual practices (mass), and officiated religious events such as baptism and marriage. The Friars also organized residents’ daily activities and helped teach trades and skills to the native residents. As residents of the Mission, native people were discouraged from practicing their own rituals (mitotes).

**TOUR EXPLORE**
Draw or photograph a symbol of religion at the Mission.

**TOUR EXAMINE**
Read the information resources available around Mission San Juan (or in videos/cell phone recordings).

See if you can answer the following:
1. Why do you think that pictures, statues, and symbols were used at Mission San Juan to teach the Catholic faith?

Learn more!

Video Link
Frontier Franciscan (NPS, approx. 5 minutes)
http://www.nps.gov/saan/photosmultimedia/video-gallery.htm
(http://www.nps.gov/saan/photosmultimedia/video-gallery.htm)

Cell Phone Dial In Information
Call 210-852-2407 and
Press 25 to hear The Franciscan Missionary

Spanish: Call 210-852-2408
and
Press 25 para Misionarios Franciscanos
Vulnerability

Vulnerable: open to attack, harm, or damage

Lipon Apache and Comanche: large, organized tribes of native people who sometimes took resources from the Mission and its ranches.
The Mission residents feared such attacks.

Mission San Juan was vulnerable in many different ways. Some of these vulnerabilities were from natural sources and others were human-made. Human-made threats included poor sanitation, disease, and attacks from aggressive tribes. In addition, the Mission community experienced natural threats from drought and crop failure. Today, the Mission remains vulnerable, as human destruction, pollution, and natural weathering and erosion processes change the shape of the Mission.

**TOUR EXPLORE**
Draw or photograph at least 1 example of vulnerability at the Mission. Is this a natural or human-made vulnerability?

Learn more!

Cell Phone Dial In Information
Call 210-852-2407
and
Press 15 to hear Security Threats
(refer to Mission Espada)

Spanish: Call 210-852-2408
and
Press 15 para Amenazas a la Seguridad
(refer to Mission Espada)