

**Lesson Title:** Making Inferences about a Llano River Rancheria

By: Jason Terry

**Subject:** Texas History

**Grade Level:** 7<sup>th</sup>

**Rationale:**

In this lesson, students will learn about the Indian groups who lived 1,000 years ago on the Llano River. The students will use paintings and photographs of tools and other artifacts to make inferences and conclusions about how the Indians lived. Then the students will teach the rest of the class about one aspect of the groups' archeological history.

**Materials:**

- Access to computers with online capability
- Transparencies of "A Rancheria" and "Graham-Applegate Introduction"
- Artifact placards, preferably laminated onto cardstock. Each of the following artifacts should have a separate picture page and an information page:
  - Dart Points
  - Manos
  - Micro Cores
  - Exotic Volcanic Glass
  
- Artifact Information Answer Key
- Writing and illustration materials

**Lesson Duration:** Two 45 minute periods or one 90 minute block

**Objectives:**

- Social Studies 113.23 (21A), differentiate between, locate, and use primary and secondary sources such as computer software, artifacts to acquire information about Texas
- Social Studies 113.23 (21B), analyze information by drawing inferences and conclusions
- Social Studies 113.23 (22A), use social studies terminology correctly
- Social Studies 113.23 (22B), use standard grammar, spelling, sentence structure, and punctuation
- Social Studies 113.23 (22D), create written, oral, and visual presentations of social studies information

**Activity:**

Step 1: Place the "Graham-Applegate Introduction" transparency on the overhead. Read the introduction to the class, framing it as a mystery. Explain that it will be their job to learn as much as possible about this elusive culture's lifestyle based on artifacts found at the Graham-Applegate site.

Step 2: Place the “A Rancheria” transparency on the overhead. Explain that rancheria was the Spanish name for a temporary settlement inhabited by Native Americans. The students will search the painting for details that give clues as to the pictured Indians’ way of life. The students may point out clues from their desk, or come up to the overhead to identify them. As clues are identified, the teacher will lead the class in a discussion about the Indians, covering such points as:

- Do the Indians appear to be nomadic or stationary?
- What types of foods do the Indians eat?
- What types of jobs were there to be performed around the village?

Step 3: Divide the class into groups of 4-5. Once each group is situated, the teacher will give each one a different placard with a picture of an artifact on it. The teacher will explain that each picture illustrates an artifact found at the Graham-Applegate site. It is the group’s task to figure out what their object was used for. Each group should appoint a recorder to keep track of ideas as the group brainstorms.

Step 4: Allow ten minutes for each group to brainstorm, while monitoring their progress. If groups are still stumped after the allotted time has expired, the teacher may provide clues as to the artifact’s identity and purpose, using the Artifact Information Answer Key. If students guess the identity of their artifact without needing the clues, they may skip to step 4.

Step 5: After the students have learned the identity and purpose of their artifact, the teacher will give each group an information handout containing more information on their artifact.

Step 6: Have students view the following sites on the Internet and take notes that pertain to their group’s artifact:

- [www.texasbeyondhistory.net](http://www.texasbeyondhistory.net) (Graham-Applegate exhibit, found on “Maptool”)
- [www.cookstonetechnology.com/site\\_formation\\_midden.htm](http://www.cookstonetechnology.com/site_formation_midden.htm) (burned rock middens)
- <http://www.texasbeyondhistory.net/bowie/index.html>

Step 7: Each group should then come up with a way to teach the class about their artifact. It can be a skit or other presentation.

Step 8: Allow the groups to present their artifact to the class.

**Modification:** Provide a paragraph outline for special needs students.

**Student Product:**

- Artifact brainstorming notes
- Descriptive paragraphs of the Graham-Applegate site
- Group role play or poster presentation of each group’s artifact

**Closure:**

Put the Introduction transparency back on the overhead. Have the students make conclusions about how the Indians at the Graham-Applegate site lived. Write the conclusions on the transparency.

**Assessment:**

Have the students write a paragraph about the Graham-Applegate rancheria. The paragraph should describe the lifestyle of the Indians who once lived at the site. Each paragraph should include the following words used correctly: rancheria, ear, chert or flint, granite, and cook.

**Extension:**

- Carve an arrowhead out of soap using a disposable plastic knife
- Use three of the documents and their descriptions to create a Document Based Question packet.

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## Graham-Applegate Introduction



In the rolling granite hills near the confluence of the Llano and Colorado Rivers, the remains of a thousand-year-old Indian village, or *rancheria*, are slowly coming to light through excavations by the Llano Uplift Archeological Society. Named Graham-Applegate after the present-day landowners, the site offers a rare glimpse into the lives of a little-known Indian people who called central Texas home at the turn of the first millennium A.D. Their culture vanished—or blended with that of later groups—several centuries before the earliest Spanish expeditions entered the region. No written account exists that could tell us who these people were, what language they spoke, or even what they called themselves. Archeologists refer to the culture of these people, and the time in which they lived, as the Austin phase.

**What conclusions can we make about the people who lived at the Graham-Applegate site and how they lived?**

## A Rancheria



## Dart Points



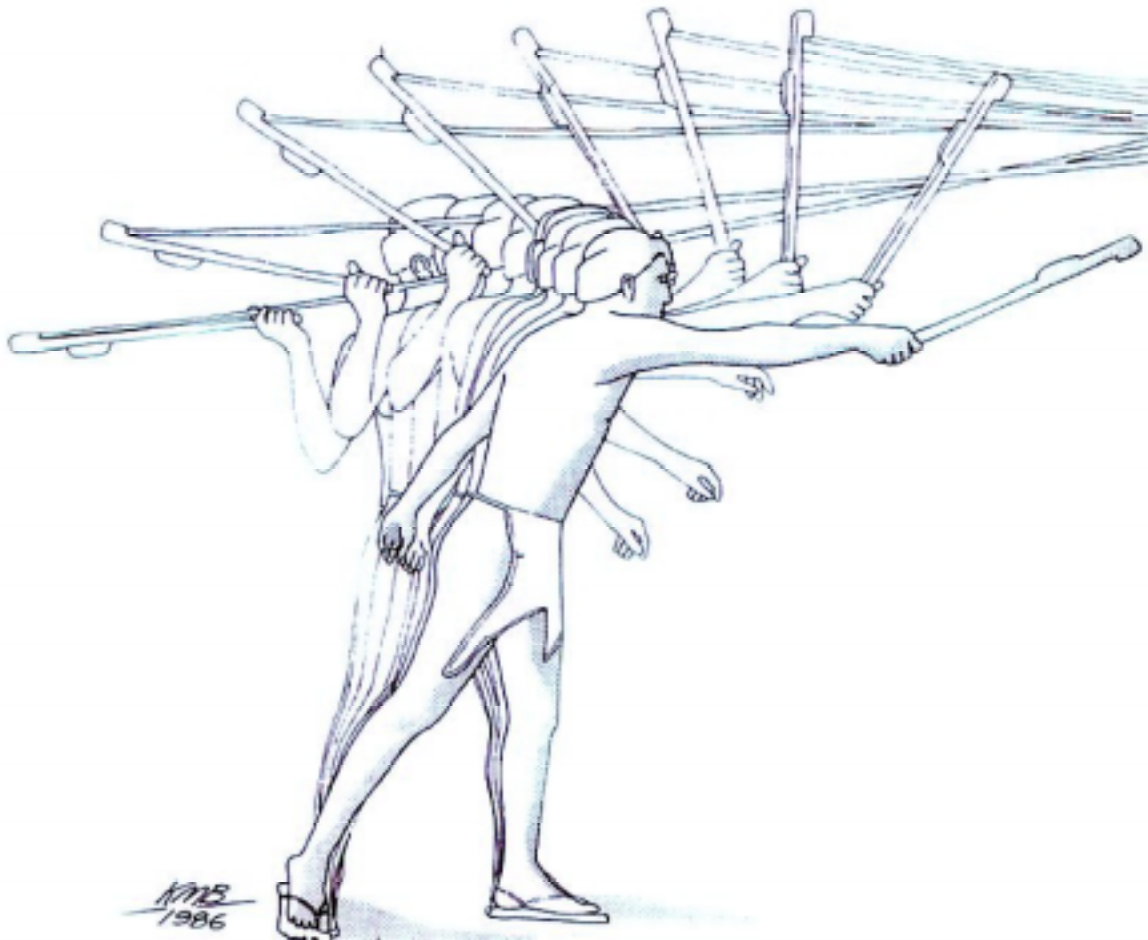
## Dart Points

The atlatl (or spear thrower) is a short stick, two feet or so in length with a small prong or hook at one end. It was used to throw a light spear or dart, which was tipped with a chipped stone point. Although simple in design, the atlatl is an extremely effective weapon, allowing the user to throw a dart or spear much farther—the length of a football field—than he could without it and with the force necessary to bring down large game. The atlatl is a very ancient weapon—no one really knows how old, but it was in use in the Old World at least 20,000 years ago—and there is a strong likelihood that the earliest people to enter the New World were equipped with it.

Discuss the following questions in your group:

What device do we use today to perform the same job that a dart point did then?

Which do you think is more effective, a dart point or the modern device?



# Manos





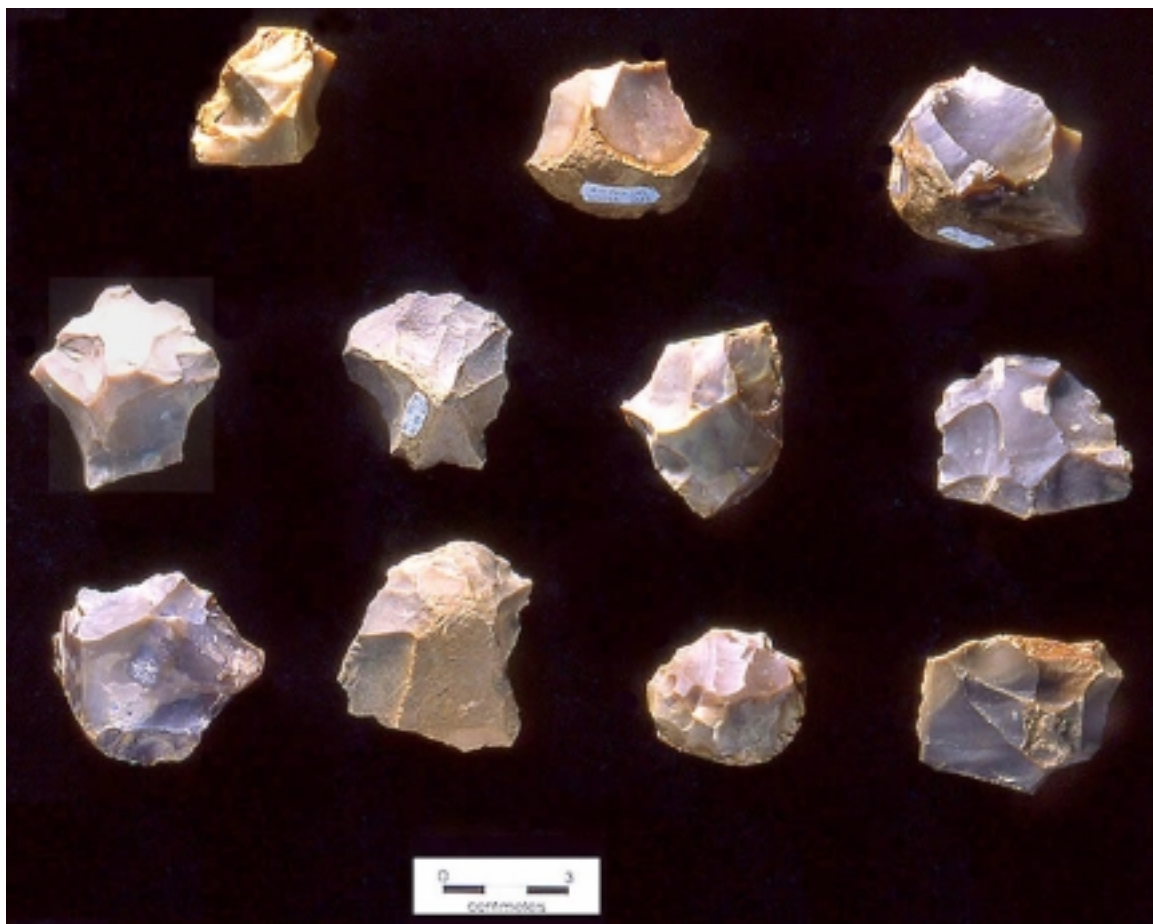
## Manos

Groundstone tools made by grinding, battering, and pecking have been found in all parts of the Graham-Applegate site. These include granite manos (hand stones) and sandstone metates (slabs with shallow depressions to hold the food) fragments. Prehistoric peoples processed tough seeds with hulls and nuts into a usable food by placing them in the shallow depression on a metate and then rubbing them back and forth repeatedly. They also used the mano to pound some foods. Once the food was ground into a coarse meal, like corn meal or flour, and it could then be mixed with fat or water and fried like pancakes.

Discuss the following questions in your group:

1. What modern invention has taken the place of a mano?
2. Which one do you think works better: a mano or the modern invention? Explain your answer.

Micro-cores



## Micro-Cores

Very small cores, or micro-cores, occur in significant numbers at the rancheria. These present a puzzle because tiny flakes were being struck from them, flakes too small to be used for making arrow points. Perhaps the small flakes were used in groups to make composite tools. For example, a series of small flakes could be inserted into a groove along a wooden stick or piece of antler to make a long-edged, serrated cutting tool. These small flakes also could have been used singly in delicate cutting or scraping tasks.

Discuss the following questions in your group:

1. What types of tools have taken the place of tools made from micro-cores?
2. Which tools do you think lasted longer? Tools made from micro-cores or the modern inventions? Why?

## Exotic Volcanic Glass



## Exotic Volcanic Glass

Among the thousands of pieces of flint chipping debris recovered from the workshop area at the southern edge of the Graham-Applegate site were three small flakes of volcanic glass, or obsidian. Someone a thousand years ago was chipping an obsidian tool—a knife or scraper, perhaps—or maybe resharpening such a tool by removing flakes along one edge. In any case, the tool was a treasured object to its owner, made from a black, transparent stone of unusual beauty and flaking properties that few other people in central Texas possessed a thousand years ago. We currently believe the rock comes from an outcrop almost a thousand miles away. Obsidian does not occur naturally in central Texas. The volcanic activity required for its formation has not taken place here in recent geological times, and earlier periods of volcanism did not leave obsidian outcrops. The Indian people of central Texas could only acquire this rock through trade or as spoils of war.

Small amounts of obsidian were traded out from a number of different and widely spaced sources in western North America, being passed from one individual to the next, becoming scarcer and more valuable as the distance traveled increased. By the time what was likely a very small piece of volcanic glass reached central Texas, it was probably a highly sought-after exotic material. The good news for archeologists is that obsidian is traceable to its place of origin. Each geologic formation of obsidian has its own unique set of trace elements, a chemical signature that can be read in any piece of material taken from it. While you might expect that prehistoric people in central Texas acquired obsidian from the nearest sources (for example, sources in far west Texas and New Mexico), most volcanic glass found in Late Prehistoric sites in central Texas has been traced back to outcrops far to the north—in Wyoming or Idaho. The obsidian flakes found at the Graham-Applegate site await final interpretation of analyses; preliminary results, however, suggest they may have come from the Mineral Mountains in southwestern Utah.

Discuss the following question in your group:

1. What types of things have taken the place of obsidian in our lives today?  
Name 3.
  
2. If the natives who lived at the Graham-Applegate site had used money, would obsidian have been expensive? Why or why not?

## Burned Rock Midden



## **Burned-Rock Midden: Cooking with Hot Rocks in an Earth Oven**

The people who lived at the Graham-Applegate rancharia were great consumers of granite rock. They brought many tons of it into the settlement from isolated outcrops in the surrounding area. By far the greatest amount of rock was used in the cooking of food. Most rocks, when heated in a fire, absorb and store heat. Long after the fire has died down, the rocks continue to release the heat, making them ideal heating elements for different kinds of stone-age cooking "appliances." In prehistoric times, the people of central Texas made full use of this kind of cooking technology, constructing stone hearths in many different shapes and sizes. Most interestingly, they constructed earth ovens—layered arrangements of hot rocks and food placed in shallow pits and capped by a thick layer of earth. These were used to cook many kinds of foods but particularly certain plant foods that require long cooking before they are edible or their full nutritional value is realized. When the rocks cracked into small pieces from repeated heatings, they were tossed out and the oven pits re-lined with new rocks. The huge mounds of fire-cracked rocks, or burned rock "middens," that built up over time around these often inconspicuous ovens have long confounded archeologists.

Discuss the following questions in your group:

What do people use today instead of earth ovens powered with hot rocks?

Which one do you think is more effective, an earth oven with hot rocks or the modern invention? Why?

## **Artifact Information Questions Answer Key**

Answers will vary. Possible answers are listed below in italics.

### **Dart points**

1. What device do we use today to perform the same job that a dart point did then?  
*Bullets—the ammunition for a gun used for hunting.*
2. Which do you think is more effective, a dart point or the modern device?  
*For long range hunting, a high-powered rifle with bullets is more effective. Darts, tipped with dart points, and propelled on an atlatl also have a long range as well..*

### **Manos**

1. What modern invention has taken the place of a mano?  
*An electric blender or food processor*
2. Which one do you think works better: a mano or the modern invention? Explain your answer.  
*The electric appliances grind food much faster, but the mano can be used without electricity.*

### **Micro-cores**

1. What types of tools have taken the place of tools made from micro-cores?  
*A cutting tool, such as a sickle or scythe, used for cutting grass.  
Prehistoric peoples knocked small flakes or blades from microcores. These small flakes likely were inserted in a long row in a heavy stick or cane. This cutting tool may have been used for harvesting grasses with seeds and other plants.*
2. Which tools do you think lasted longer? Tools made from micro-cores or the modern inventions? Why?  
*The modern tools would last longer if they were made of stainless steel, which doesn't rust and holds an edge much longer than chert (flint).*

### **Obsidian**

1. What types of things have taken the place of obsidian in our lives today?  
*Scalpels, sharp steel knives*
3. If the Indians who lived at the Graham-Applegate site had used money, would obsidian have been expensive? Why or why not?  
*It would have been a valuable item because it wasn't available naturally in Texas and had to be traded. It's extreme sharpness added to its value.*

### **Burned Rock Middens**

1. What do people use today instead of earth ovens powered by hot rocks?  
*Gas or electric ovens, microwaves, convection ovens*
2. Which one do you think is more effective, an earth oven with hot rocks or the modern invention? Why?  
*The modern inventions cook food much more quickly and require much less labor than the earth ovens.*