

Inventions Over Time



Subject and Grade Social Studies, 4th

Author Janet Hammer, revised by Jason Terry (2023)

Time duration Two 45-minute class period

Objective The atlatl, spear point, and bow and arrow were important inventions during different periods of human cultural development. The students will discuss why these inventions were important to ancient people and compare ancient inventions with modern ones. This lesson addresses issues concerning the impact of science and technology on society.

TEKS *Social Studies, Grade 4*

(1) History. The student understands the origins, similarities, and differences of American Indian groups in Texas before European exploration

(1A), explain the possible origins of American Indian groups in Texas

(18B), describe how scientific discoveries and innovations such as in aerospace, agriculture, energy, and technology have benefited individuals, businesses, and society in Texas

(19A), differentiate between, locate, and use valid primary and secondary sources such as technology; interviews;

biographies; oral, print, and visual material; documents; and artifacts to acquire information about Texas

(19B), analyze information by applying absolute and relative chronology through sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions

(21A), use social studies terminology correctly

Materials

- Cause-and-effect chart (included)
- The History of Three Inventions (included)
- post-it-notes
- Velcro
- colored pencils or crayons
- paper
- Internet access for: *Hunting Without Guns* (<http://www.texasbeyondhistory.net/kids/hunting/index.html#main>) and *From Dart to Arrow* (<http://www.texasbeyondhistory.net/graham/arrow.html>)

Activities and procedures

Step 1: Have students read *Hunting Without Guns* at <http://www.texasbeyondhistory.net/kids/hunting/index.html#main> and *From Dart to Arrow* at <http://www.texasbeyondhistory.net/graham/arrow.html> to see pictures of atlatls and bows and arrows and to learn more about ancient weaponry systems. Discuss the atlatl and the bow and arrow and their impact on the lives of people. The atlatl was a throwing device developed by Paleoindian people to improve the power of a spear or dart used to hunt large animals. It was used successfully

for thousands of years, continuing during the Archaic period. The bow and arrow were developed during the Late Prehistoric Period and continued in use through the Historic period. Advantages of the bow and arrow over the atlatl and spear include the fact that a hunter with a bow and arrow can shoot an animal from much farther away, thus increasing safety. The arrow uses a smaller projectile point and can be aimed more accurately. By the Historic period, some Native Americans had perfected the art of hunting with a bow and arrow from horseback, sometimes at great speed.

Step 2: Pass out the cause-and-effect chart and have students fill it in as the class discusses the ways inventions have affected peoples' lives.

Step 3: Read the "History of Three Inventions" aloud to the students. Have students try to guess what invention you are describing. After the guesses, show examples of Velcro, post-it-notes, and a phone.

Step 4: As a class, review how telephones have changed over the years. (Operator assisted telephones, party lines, wall telephones, rotary dial, push button, cellular, etc.)

Step 5: Students work as individuals or small groups and select an item in wide use today such as a computer or stapler. Have students write what archeologists of the future will know about us by finding this item. Ask students to brainstorm and illustrate possible uses future

archeologists might predict the item was used for
(assuming they don't know in the future what the item is.)

Closure: Students share their stories and drawings with the class.

**Extension
Activities**

- Students may draw their rendition of their chosen invention in the future, such as the telephone of the future.
- Have students learn more about prehistoric life at the Kincaid Shelter exhibit:
<http://www.texasbeyondhistory.net/kincaid/index.html>
- Have students learn more about ancient tools and toolmaking at the following exhibits:
 - *Alibates Flint Quarries and Ruins:*
<http://www.texasbeyondhistory.net/alibates/index.html>
 - *Harrell Site: What the Artifacts Tell Us:*
<http://www.texasbeyondhistory.net/harrell/artifacts.html>
 - *Pavo Real: A Paleoindian and Archaic Campsite and Workshop on the Balcones Escarpment:*
<http://www.texasbeyondhistory.net/pavoreal/index.html>

Cause and Effect

Name _____

Cause	Effect
Atlatl	enabled hunters to throw the spear farther ----- ----- -----
Bow & Arrow	----- ----- -----
Fire Starter	----- ----- -----
Mano & Metate	----- ----- -----
Pottery	----- ----- -----
Automobile	----- ----- -----
Microwave Oven	----- ----- -----

History of Three Inventions

Post-It-Notes

Art Fry was an employee of the 3-M Co. He always marked his choir book at church with scraps of paper. Often these pieces of paper would drop out and he would have to remark the page. In 1974, Mr. Fry remembered a fellow employee, by the name of Dr. Spencer Silver, had discovered and discarded an adhesive because it was not strong enough to be permanently useful. Mr. Fry began working on this adhesive. For one and a half years he worked to make an adhesive that would be strong enough to hold a note in place, but not too strong that it would be permanently attached. In 1977 the 3-M Co. test marketed the post-it-note in four cities. It was successful in only two of the cities. When they researched to find why, they discovered that the two successful cities had given free samples. After trying the post-it-note for free, people liked it so much they were then buying packages of them.

Telephone

In 1876 an inventor spilled battery acid on his pants and called for his assistant to please come help him. The assistant heard the plea for help through the device they were working on.

Alexander Graham Bell and his assistant, Thomas Watson, were working on the telephone. Bell called out, "Watson, please come here. I want you." This accident helped them to realize their success, and the invention was patented a few months later.

Velcro

An inventor went for a walk and noticed upon returning that he had cockleburs stuck to his clothes. He wondered what enabled them to stick so tightly to clothes. He looked at one under a microscope and noticed it was covered with small hooks similar to fishhooks. This gave him the idea to develop Velcro.