

YESTERDAY AND TODAY

Overview
This guided imagery activity allows students to compare similarities and differences among current water sources and uses with those of the Hohokam, and 19th century Phoenicians.

Subjects: Science, Social Studies

Group Size: Entire class

Estimated Teaching Time: 25 minutes

Curriculum Framework: IIA

Environmental Education Framework: Goals IA, IIIA, IVB

Vocabulary: canals, Central Arizona Project (CAP), Hohokam, Pumpkinville

Objective

Students will compare and contrast the ways the Hohokam and nineteenth century Phoenicians obtained and used water, with the ways we get and use water today.

Background

The system of canals that bring water throughout the Valley of the Sun was developed by three groups - the Hohokam, 19th century pioneers, and the federal government. The Hohokam dug more than five hundred miles of canals over the seventeen hundred years they resided in the Phoenix area. Their farms once supported as many as 20,000 people in the Salt River Valley alone. These native Phoenicians disappeared by 1450 A.D. Today's major canal system follows many of the same grades formed by the Hohokam.

The rush for Arizona's mineral wealth brought an influx of pioneers in the 1860s, including Jack Swilling, a deserter from the Confederate cavalry. He noticed the regular depressions running from the Salt River, guessed they were the ruins of canals of prehistoric people, and decided to begin irrigated farming and make his fortune selling crops to miners and the U.S. Army stationed at Ft. McDowell. Swilling organized a private company to re-dig irrigation ditches in the Salt River Valley. This marked the beginning of modern irrigation and the predecessor of today's Salt River Project.

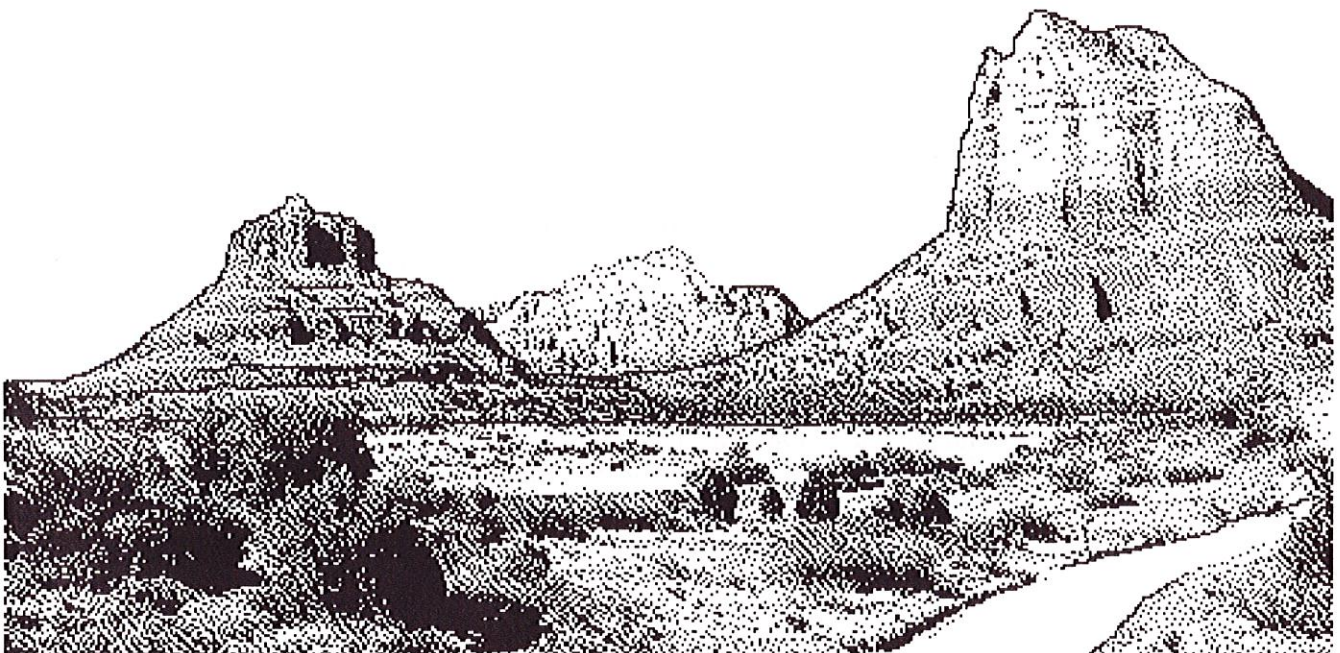
Historians credit either Swilling or his friend, "Lord" Duppa, with renaming the irrigated farming community of Pumpkinville the more dignified "Phoenix" in 1870. One of them suggested the name,

Phoenix, after the legendary bird of Egyptian mythology. The bird lived for five hundred years, was consumed by fire, and arose youthfully alive from its own ashes to become a thing of unsurpassed beauty and excellence. The name was deemed appropriate, for the town had risen on the ashes of an ancient civilization.

Severe drought in the 1890s caused private canal companies to realize additional water sources were needed. Soon they could take advantage of the 1902 National Reclamation Act that provided government loans to "reclaim" the west with irrigation projects. The obvious solution was to build a water storage dam to capture spring runoff. The nation's first reclamation project, Roosevelt Dam, was started immediately and dedicated by President Theodore Roosevelt in 1911. One by one the private canals were purchased by the government to be improved by their engineers, who also improved water supply efficiency by unifying the canal system. Several more dams and canals were built by the federal government, and are now operated by the Salt River Project.

The Central Arizona Project (CAP) was authorized in 1968 after long legal battles that ended in the U.S. Supreme Court, and years of debate in the U.S. House and Senate. The U.S. Supreme Court again approved Arizona's right to water from the Colorado River. Construction started in 1973. The Colorado River now flows through a series of pumping stations, turnouts, check structures, and tunnels through the Buckskin Mountains. The CAP travels one hundred and ninety miles to the Valley of the Sun, and three hundred thirty-six miles to Tucson in Pima County. The CAP, which cost \$3.6 billion to build, reached Phoenix in 1985. Seventy percent of the money must be repaid by Arizonans through taxes and water fees.

This activity uses guided imagery to introduce students to the history of these canals. It also encourages them to think about their own



water use. Guided imagery or simulated field trips can be a powerful way for people to experience historical and current events. *Project WILD* (p. 348-9) provides the following suggestions for this instructional technique.

Research has shown that, with their eyes closed, people activate parts of their brain-mind systems that are often left unstimulated. When we picture things in our minds, we call parts of our brains into activity that are unused in reading or writing. Studies show skill in picturing things in our minds enhances our ability to enrich reading and to increase skill and imagination in writing. The capacity to remember concepts, words, names and ideas is enhanced... The use of simulated field trips for instructional purposes is promising to become one of the most effective educational strategies of the past two decades. The following guidelines provide a basic, useful approach to the use of simulated field trips as a teaching tool.

1. Ask the students to lay aside all pens, pencils, books, etc.
2. Instruct the students to sit in a comfortable and relaxed position with their eyes closed.
3. Wait until you see a general state of relaxation before beginning.
4. Using a steady and paced reading or speaking style, begin offering the students the narrative. Remember to speak slowly and steadily. If you want the students to create rich mental pictures, you must allow them time to do so. It takes about as much time to observe mental images as it does to carefully review actual physical settings.
5. Once the narrative is finished, invite the students to review all of the images they saw in their minds. Again, try to allow enough time for an adequate visual review - and remember, the review takes time.
6. After an adequate time for mental review (at least one minute and possibly two minutes), ask the students to open their eyes.
7. Begin discussing the simulated field trip in terms of the instructional purpose for its use.

In some cases, the process serves simply to provide a visual review of some of the students' past experiences. At other times, you are providing stimuli for the students to create original images. In any case, it is important to realize that there are no mistakes in mental images. What a student pictures is real. The images are data. If students create images that are inconsistent with what you expected, consider the images to represent differing perspectives rather than wrong answers. Try to honor and nourish variety as a means to add richness to the topics being explored. In addition to serving as a powerful and effective way to explore and remember concepts, regular use of simulated field trips also tends to relax students. When relaxed, they will frequently be more productive in all academic areas - including scoring higher on standardized achievement tests.

Materials

- a quiet room

Procedure

1. Let students know that they will be going on an imaginary journey during this activity. Ask them to get comfortable and close their eyes. Read the following, pausing at least five to ten seconds at the rests (~).

*Imagine yourself when you woke up this morning ~~~~~
~~~~~ Tune into the sights, sounds, smells and feelings at that moment ~~~~~ ~~~~~ Get up and begin your day, noticing when and how you use water this morning ~~~~~*

*Some of the water you used may have come 190 miles through a canal from the Colorado River ~~~~~ Some of the water may have traveled through canals first dug by Native Americans two thousand years ago ~~~~~*

*Imagine yourself as a member of the Hohokam people in the Sonoran Desert two thousand years ago ~~~~~ ~~~~~ ~~~~~ The Salt River has large, green trees and wild grasses along its banks ~~~~~ To help feed the people of your community you use rocks and*

*sticks to dig canals to bring water to your fields ~~~~~*



Imagine you are waking up in your village ~~~~~ What sights, sounds, smells and feelings greet you? ~~~~~ Get up and begin your day, noticing when and how you use water this morning ~~~~~

*Now let the scene around you change to the way it may have been in the 1870s ~~~~~*

*~~~~~ ~~~~~ The Salt River still has large trees and grasses along it, but your lands are far from the river in the town of Pumpkinville ~~~~~ You join a company that is digging new canals along the ruins of those dug by the Hohokam ~~~~~ Now you have a sure supply of water and can grow all the plants you want ~~~~~ ~~~~~*

*Imagine you are waking up on your farm ~~~~~ What sights, sounds, smells and feelings greet you? ~~~~~ ~~~~~ Get up and begin your day, noticing when and how you use water this morning ~~~~~*

*Think about the ways you got and used water in your images ~~~~~ ~~~~~ ~~~~~ Then come back to the present and open your eyes ~~~~~*

2. Encourage students to share, asking: "How did your images of the ways water was used compare over three time periods - now, two thousand years ago, and the 1870s? How did the ways you got water compare?" Share your own images as well as more history. Students might enjoy knowing Phoenix was once Pumpkinville.

## Extension

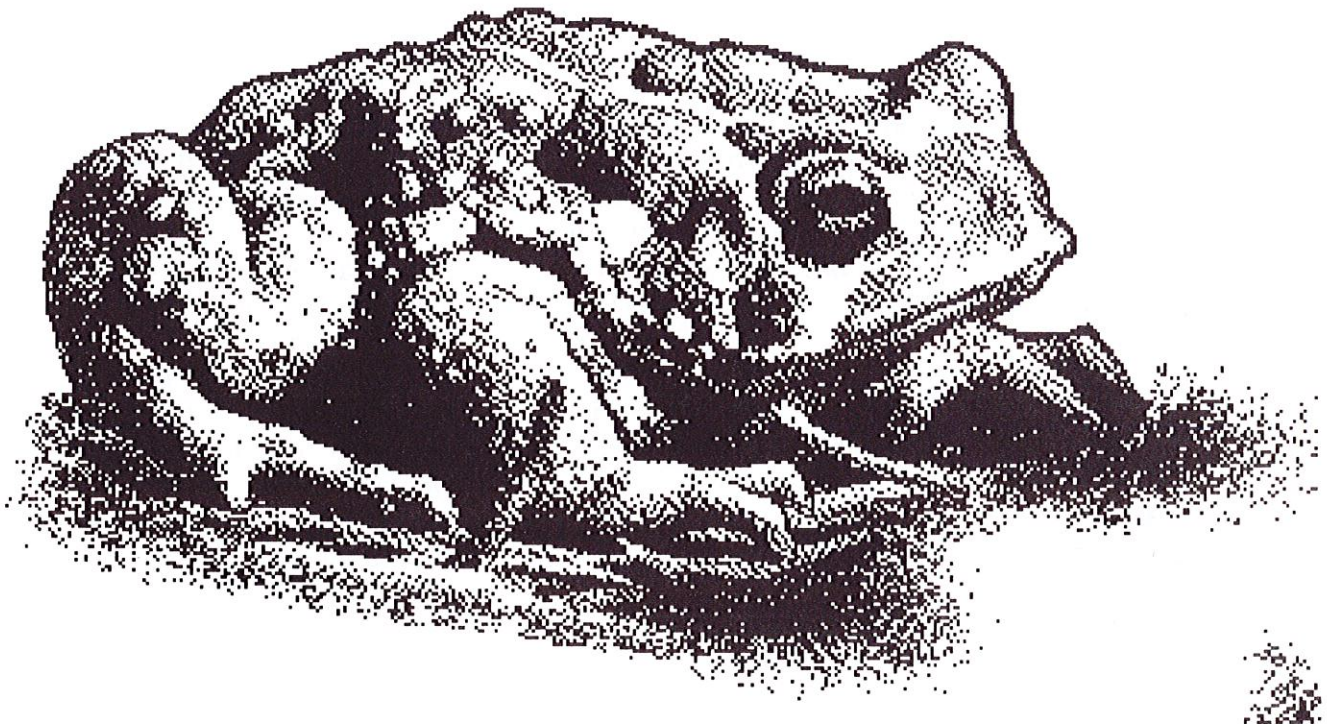
1. Have students write stories about ways we can get and use water in the future. Stress conservation as a responsible way of using water and one sure method of "getting" more water.
2. Ask students about the number of large trees (cottonwoods and willows) and grasses along the banks of the Salt River now. Have them investigate what happened to the riparian lands that once were common along the Salt and many other Arizona rivers including the Colorado, Gila, and Santa Cruz. Also, encourage investigation of native fish species. Sources include the AZ Department of Environmental Quality, the

AZ Department of Water Resources, and AZ Game and Fish.

3. Study the Salt River Project map of the ancient canal system, Prehistoric Irrigation Canals. Encourage students to gather stones and pieces of wood and then try to dig a small canal to transport water on the school campus.

## Evaluation

1. Identify three ways the Hohokam and 19th century Phoenicians got and used water that are similar to the ways you get and use water today.
2. Identify three ways the Hohokam and 19th century Phoenicians got and used water that are different from the ways you get and use water today.



## Resources

American Forest Council. 1993. **Project Learning Tree.**

Arizona Game & Fish. Aquatic Education tape: **Native Fish of the Southwest.**

Bagwell, K. 1993. "Crucial forest type in Arizona nearly gone, survey finds" in **The Arizona Daily Star**, 12/3/93, pp. 1&4B.

Central Arizona Project Association. **Our Lifeline Is On Line.**

Salt River Project. 1986. **Gift From the Hohokam.**

Salt River Project. **Prehistoric Irrigation Canals.**

Salt River Project. 1991. **SRP Canals.**

Salt River Project. 1979. **The Taming of the Salt.**

Salt River Project. 1978. **Water in the Valley Today.**

Trimble, M. 1989. **Arizona: A Cavalcade of History.** Tucson: Treasure Chest Publications.

Western Regional Environmental Education Council. 1992. **Project WILD.**

