

The Story of Hot Springs, 1500-1900 AD

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In this short lesson students will learn about the geology and hydrology of Arkansas' "hot springs" and how the environment of the Ouachita Mountains Natural Division relates to the development of the city of Hot Springs. They will become aware of the role the U.S. Government played in the preservation of the hot springs and will work in class to create their own advertisements for the city and the therapeutic effects of its waters.

Grades: 7-8

Arkansas Curriculum Frameworks:

Arkansas History 1.1.10, 1.1.12, 2.1.7, 2.1.8, 3.1.13, and 5.1.18

Science LS 2.4, LS 2.9, LS 2.12, LS 3.2, ES 1.1, ES 1.2, ES 1.5, ES 2.1, ES 2.3, ES 2.5, and ES 3.8

Social Studies TCC 1.1, PPE 1.1, PPE 2.1, PPE 2.4, PPE 2.5, PPE 2.8, and PDC 1.6

Key Terms:

percolate	chert	novaculite	therapeutic	spa
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Key Terms Defined:

percolate: To pass or cause to pass through a porous substance.

chert: A sedimentary rock, composed of small particles of silica.

novaculite: A dense, closely fractured sedimentary rock that is not easily penetrated by water.

therapeutic: Having healing or curative powers.

spa: A resort area having mineral springs.

Materials:

- A map of Arkansas
- A map of Hot Springs, if available (can be obtained from the Greater Hot Springs Chamber of Commerce: 1-800-467-INFO or <http://hotsprings.dina.org>*)

Background Information:

Why is the water hot?

Geologists tell us that millions of years ago rocks were deposited into layers on the seafloor that is now part of Arkansas. Since that time the rocks in the Ouachita Mountains have been hardened, squeezed, folded, faulted, and eroded into the layers of shale, sandstone, novaculite, shale, and chert we see today. Precipitation is the source of the

* To access links, copy and paste into your browser.

natural hot springs. The rainwater percolates into the chert and novaculite. As the water travels downward through the openings in the rock layers, the hot rocks deep within the earth heat it. It travels back to the surface along faults and joints and reappears as hot springs.

Scientists estimate the hot water that returns to the surface fell as rainwater over 4,000 years ago. It flows at a rate of 850,000 gallons a day, and the average temperature is 143° F. The water of the hot springs is tasteless, odorless, and contains the following elements and compounds: silica, calcium, magnesium, sodium, potassium, bicarbonate, sulfate, chloride, oxygen, and carbon dioxide.

What was the natural environment around the hot springs like from 1500-1900 AD?

The area of what is now Hot Springs was a valley between mountain ridges. Water was abundant in streams, creeks, and rivers, as well as from the hot springs. The land was covered with thick forests of oak, hickory, and pine. Other types of vegetation included ferns, wildflowers, and shrubs. Large animals such as elk, bear, deer, wolves, and bison roamed the area. Smaller animals included opossums, rabbits, turkey, fox, squirrels, and birds. Early explorers wrote in their journals about the blue-green algae that grew in the hot springs. Today we know this algae is found in only a few other places in the world.

How did the city of Hot Springs develop around the natural hot springs?

The hot water springs have attracted people to the area for centuries. Native Americans used the springs for many years before Europeans arrived. During the 17th and 18th centuries, French trappers, hunters, and traders visited the springs. The springs became part of the U.S. in 1803 with the Louisiana Purchase from France. In 1804 President Jefferson sent an expedition led by William Dunbar and George Hunter to explore the natural hot springs. Their report to the president stirred a lot of interest in the springs, and in the 1820s and 1830s people began to travel regularly to the area for the therapeutic effects of the hot waters. The springs were used as treatment for rheumatism, arthritis, sexually transmitted diseases, complexion problems, and a variety of other ills, as well as for simple rest and relaxation.

In 1832 the Federal Government set aside four sections of land to protect the springs; this was the first reservation of its kind in the U.S. At the time there were only temporary structures, such as tents and shacks. The first permanent structure, the “Whittington House,” was built in 1839—only three years after Arkansas became a state. From 1850-1900 many bathhouses and hotels were built. The railroads came in during this time period, bringing more and more people to Hot Springs, known at the time as “The Spa City.” According to an 1893 report by the Hot Springs Health Department, the city had 17,000 residents; 70,000 visitors during the year; over 500 bath houses, hotels, and boarding houses; 22 churches; 10 schools; and 90 doctors.

Activities:

1. Locate Hot Springs on a map of Arkansas, and display a map of Hot Springs if possible. Ask students what they know about Hot Springs and list their responses on the board.
2. Ask, “Does anyone know *why* there are hot springs in the city of Hot Springs?” Give background information about the springs (above).

3. Ask, "What do you know about the natural environment and the development of the city of Hot Springs from 1500-1900?" Give the rest of the background information (above).
4. Give students the assignment of designing an advertisement to attract people to the city of Hot Springs during the 1800s, using the background information they have been given. Put a rubric on the board for the grades that will be given for their finished products. The remainder of the class time can be spent working on their projects, and their finished ads can be turned in the next day.
5. Allow time for students to share their advertisements. Display students' work on a bulletin board or in the hallway.

Extensions:

1. Have a class discussion on how the city of Hot Springs affected the natural environment. What aspects of the natural environment are no longer there because of the human/environment interaction?
2. Invite a geologist or hydrologist to your class to discuss the geology of the hot springs in detail. Discuss the pros and cons of the Federal Government's protection of the springs.

Sources:

Bedinger, M.S. *Valley of the Vapors*. Hot Springs National Park, 1974.

United States Department of the Interior, National Park Service, Hot Springs National Park.

Van Cleef, A. "The Hot Springs of Arkansas, 1878." *Harper's Magazine*, 1878; reprinted, Silverthorne, Colorado: Vistabooks, 1995.

Ye Hot Springs Picture Booke. St. Louis: Woodward & Tierman Printing Company, 1894; reprinted for the Hot Springs National Park and Monument Association, 1992.

Suggested Websites:

Arkansas Geological Commission: <http://www.accessarkansas.org/agc>

Greater Hot Springs Chamber of Commerce: <http://hotsprings.dina.org>

Hot Springs National Park: <http://www.hsnp.com>

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*Arkansas History lesson plans are available online at the Butler Center for Arkansas Studies website:
http://www.cals.lib.ar.us/butlercenter/lesson_plans.*