

Crowley's Ridge: An Upland in the Lowlands

*Lesson Plan by Ellen E. Turner
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Students will learn about the formation of Crowley's Ridge and the features that make it one of Arkansas' six natural divisions. They will also learn about the impression that this "upland in the lowlands" made on the Europeans who explored Arkansas and the reasons Crowley's Ridge was attractive to them. Students will read about the plants and animals important to early settlers on Crowley's Ridge and use this information to produce a class quilt depicting the natural features of the ridge.

Grades: 5-8

Arkansas Curriculum Frameworks:

Arkansas History 1.1.7, 1.1.9, 1.1.12, 1.1.14, 2.1.4, 2.1.7, and 4.1.5

Science LS.2.11, LS.3.2, ES.1.2, ES.2.2, ES.2.4, ES.2.5, and ES.3.8

Key Terms:

geology	climate	alluvial	lowland	loess	upland
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Key Terms Defined:

geology: The study of the origin, history, and structure of the earth.

climate: The meteorological conditions, including average temperature and precipitation, that are characteristic of a particular region, calculated by averaging these conditions over a long period of time.

alluvial: Having to do with alluvium—sediment deposited by flowing water, as in a riverbed, flood plain, or delta.

lowland: An area of land that is low, sometimes moist, and usually flat or gently rolling.

loess: A buff to gray windblown deposit of fine-grained soil (pronounced "luss").

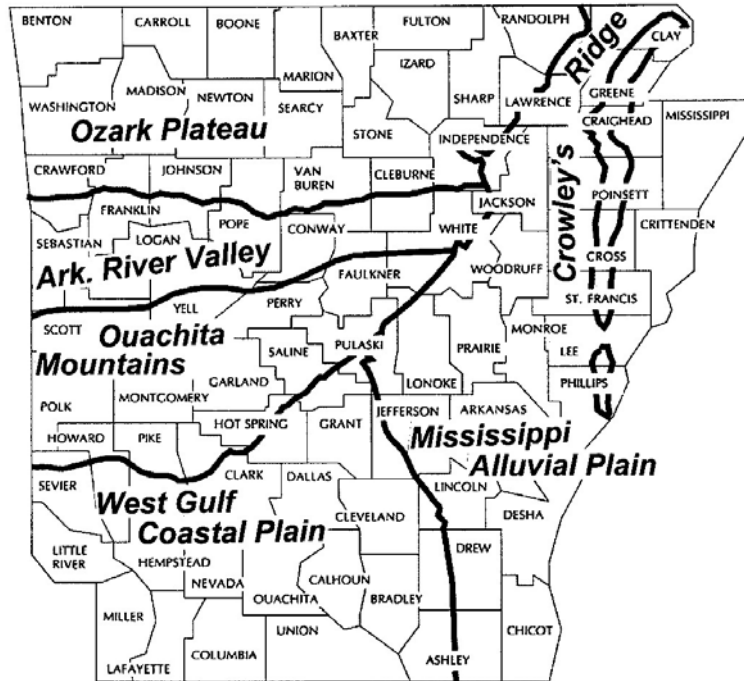
upland: An area of land that is mountainous or hilly.

Materials:

- A copy of Crowley's Ridge Summary for each student (included below)
- colored paper or construction paper in a variety of colors (check with local copy stores, which sometimes throw away large quantities of scrap colored paper)
- glue and scissors for each group of two to three students

Background Information:

After looking at the geology, soils, climate, plants, and animals of each part of the state, scientists have determined that there are six distinct natural divisions in Arkansas. These are the Ozark Plateau (Ozark Mountains), Arkansas River Valley, Ouachita Mountains, West Gulf Coastal Plain, Mississippi Alluvial Plain (Delta), and Crowley's Ridge.



Adapted from Foti, Thomas and Gerald T. Hanson. Arkansas and the Land. Fayetteville: University of Arkansas Press, 1992, p. 36.

Crowley's Ridge, named after Benjamin Crowley, an early settler, is the smallest natural division in Arkansas. The ridge is about 200 miles long from its origin in Missouri to its southernmost tip near Helena, Arkansas; its greatest width is only about 10 miles. For travelers driving for the first time through the lowlands of the Mississippi Alluvial Plain, the appearance of Crowley's Ridge is startling. Although its highest elevation is only about 400 feet and it averages about 250 feet high, Crowley's Ridge seems quite tall compared to the flat bottomlands of the Delta that surround it.

The foundation of Crowley's Ridge was formed millions of years ago during the Paleozoic and Mesozoic Eras, when the Gulf of Mexico extended into northeast Arkansas. During the Cenozoic Era, about 50 million years ago, the Gulf retreated. Over a long period the sand and gravel that the ocean had deposited were washed away from the surrounding Mississippi Alluvial Plain by the rivers that meandered across the eastern part of the state. Rivers ran on both sides of Crowley's Ridge but not over it, leaving the ridge untouched by their erosive action.

Late in the Cenozoic Era, the glaciers that had covered much of North America melted, and the erosion of the Mississippi Alluvial Plain continued. By the time the White, Arkansas, and Mississippi Rivers had carried billions of gallons of water across

the Mississippi Alluvial Plain, the land was flat indeed. As glaciers moved across the continent, their massive size ground big rocks into very fine soil. That soil, known as loess (pronounced “luss”), was blown across the land by wind. A lot of this windblown soil settled on Crowley’s Ridge and the Mississippi Alluvial Plain, but as the rivers continued to wander and erode, the loess was washed away from the plain. On Crowley’s Ridge, however, the loess continued to collect—up to 50 feet deep in some locations! Loess is very easily eroded, and water has cut Crowley’s Ridge into sharp ridges and deep valleys.

The upland forests of oaks and hickories found on Crowley’s Ridge look much like forests in the Ozarks. A closer look, however, reveals a curious fact. The forests of Crowley’s Ridge more closely resemble the tulip tree and oak forests of Tennessee than the forests of the nearby Ozarks! Although early European settlers cut down most of the virgin forests, second-growth forests now cover about 40% of the ridge.

When European settlers arrived in Arkansas, Crowley’s Ridge must have been a welcome sight. Imagine the difficulty that these travelers had as they attempted to pull their wagons through the often-flooded, swampy bottomlands of the Delta. One of the men traveling with Hernando de Soto, the famous Spanish explorer, had this to say about a land that was likely Crowley’s Ridge:

“He [de Soto] came to a small river, over which a bridge was made, whereby he crossed. All that day, until sunset, he marched through water, in places coming to the knees; in others, as high as the waist. They were greatly rejoiced on reaching the dry land; because it had appeared to them that they should travel about, lost, all night in the water.”

Frederick Gerstaeker, a German hunter and explorer, was in Arkansas from 1839-1841 to enjoy hunting, although by that time Arkansas was already a state and the best hunting was restricted to the more remote regions. He spent much of his time along the St. Francis River, near Crowley’s Ridge. He had this to say about a visit to the ridge:

“I was much surprised next morning by the view from Dunn’s house. We were again amongst the hills, the house standing on the eastern spur, which stretches out toward the swamp like a peninsula. The thick white fog, through which not a tree was visible, north, south, or east, looked like the sea, and I was prompted to look out for a sail; the glowing red ball of the sun as he worked his way through it, cast a roseate hue over all. As the sun rose higher the fog began to disperse, and the tips of the highest trees appeared. As the fog vanished, it gave place to a boundless extent of green, unbroken by any rise, save that on which we stood. I remained for a long time in silent admiration of the fascinating sight.”

Given the impressions of these early travelers, it is no surprise to learn that many of the early settlers on Crowley’s Ridge owned and operated farms in the Delta, but built their homes and communities on the high ground to escape the frequent flooding and the pesky mosquitoes that were seasonally abundant in the bottomlands. Today many of the largest communities in eastern Arkansas are located on or next to Crowley’s

Ridge, including Forrest City, Helena, Jonesboro, and Wynne. This natural division passes through eight counties—Phillips, Lee, St. Francis, Cross, Poinsett, Craighead, Greene, and Clay Counties. The county seats of every one of these lie on the higher elevations of the ridge, out of the reach of Mississippi River floodwaters.

Activities:

1. Give the students a summary of the geologic events that led to the formation of Crowley's Ridge, using the "background information" above. Then, have them close their eyes as you read Gerstaeker's account of his morning on the ridge. After reading his comments, have students sketch either the ridge as it appeared to early settlers from the surrounding bottomlands or the plains as they looked from the ridge. Have students save their sketches for the rest of this activity.
2. Give each student a copy of Crowley's Ridge Summary (included below) and allow enough time for them to read it.
3. As a class make a list of plants and animals that were important to the European settlers. Include plants (like oak trees) that provided food for the animals that they depended on for food.
4. Explain to students that early European settlers didn't have stores from which to buy blankets or the fabric to make them. Instead, women saved scraps from worn-out clothing, cut them into interesting patterns, and pieced them together to make quilts for their beds. Tell students they will make a class quilt from colored paper scraps to represent the plants, animals, and landscape that attracted the early settlers to Crowley's Ridge.
5. Divide the class into groups of two or three and give each group three "squares" of colored paper or construction paper—earth tones will be best. (Be sure to cut enough off of the bottom of each piece of paper to make it a true square, or have students do this.) These will serve as the background for three quilt squares.
6. Give each group additional colored paper or construction paper scraps, glue, and scissors. Have each group create three quilt pieces—the first depicting plants that were important to the early settlers, the second depicting animals that were important to them, and the third showing the Crowley's Ridge landscape. (They may use the drawings they did earlier for this step.) Groups should draw their designs on the colored paper, cut them out, and glue them to their three square backgrounds.
7. While the groups are working on their quilt squares, tape or staple together two large sheets of butcher paper to form the quilt to which their squares will be attached. The size of the quilt will depend on the size of the class. After the groups have completed their squares, glue or tape them to the quilt.

You may want to choose a design for the quilt, such as alternating plants, animals, and landscape images. Alternatively, you may want to make two small quilts, one with the plants and animals, and one with landscapes. Consider using your quilt to

tell a story about life on Crowley's Ridge. Arrange the quilt squares in order so that listeners can see the quilt images as they hear your story. Have fun and be creative!

Sources:

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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*.*

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Crowley's Ridge Summary

When the earliest European settlers arrived at Crowley's Ridge, they found a high, dry land that rose out of the bottomlands of the Mississippi Alluvial Plain. A swift river, the St. Francis, ran on the east side of Crowley's Ridge. There was plenty of fresh water on the ridge, and the soil was suitable for farming. The richest soil lay at the base of the ridge, but many of the settlers built their homes on top of Crowley's Ridge out of the way of the Mississippi River floods. Those settlers who farmed the uplands of the ridge found that the soil (called "loess") eroded very easily. Soon after they began farming, large gullies formed on some of the slopes of Crowley's Ridge.

Crowley's Ridge extends about 150 miles from the Missouri state border to its southern tip near Helena, Arkansas. It has two important gaps where the St. Francis and the L'Angeuille Rivers cross the ridge. Standing about 250 feet above the surrounding bottomlands, the surface of the ridge is gently rolling, and the slopes aren't very steep. Many springs feed two fairly large creeks on Crowley's Ridge; the early settlers found plenty of fresh water, and they could find plenty of fish and other animals in the creeks and rivers, such as frogs and turtles.

The forests on Crowley's Ridge were similar to those many of the settlers left behind in Tennessee. They found tulip trees (tulip poplars) and beech trees like those in the east, and there were oak, hickory, and pine trees like the upland forests in the Ozarks. Crowley's Ridge also had two very unusual plants—the bigleaf magnolia (*Magnolia macrophylla*) and the climbing magnolia (*Schisandra glabra*). The forests also had many white oak trees, and these oaks, along with other oak species, provided acorns for white-tailed deer, black bear, wild turkey, and many other important animals that the settlers used for food. The lowlands next to Crowley's Ridge were ideal for farming, and game was plentiful there, too. Settlers hunted white-tailed deer, raccoon, cottontail and swamp rabbits, and squirrels. Some of the most plentiful animals to hunt in the river delta were waterfowl. Mallard ducks were most important, followed by geese.

There was plenty of wood in the forests both on Crowley's Ridge and the adjacent Mississippi Alluvial Plain. The settlers used the trees to build their homes and to make simple furniture. They also used the trees they cut to build fires for heat and to cook their food.